FAMERICAN BEECOURING.

JUNE, 1917

638.05 As



Kanaroff Apiary, Borchalinsk County, Tiflis, Russia

About 80 hives of bees painted in different designs to enable the bees to recognize their home. New methods are being adopted. Note the Bingham smoker and Alexander veil at the left and the Dadant hive at the right. This is the first of a series of pictures of Caucasian apiaries which will apppear in our columns

WESTERN BEEKEEPERS!

We handle the finest line of Bee Supplies. Send for our 68 page catalog. Our prices will interest you.

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Read what J. I. Parent of Chariton, N. Y., says:
"We cut with one of your Combined Machines last winter 50 chaff hives with 7-in, cap, too honey-racks, 500 frames, and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw, It will do all you say of it."
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And get big yields from gentle bees. Write for circular and Price list.

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You will save money and freight on your 1917 foundation by shipping us your beeswax and paying only for its manufacture into "superior foundation." (Weed process.)

OLD COMBS AND SLUMGUM

Send them along: for the lowest freight rate bill as "beeswax refuse." Our steam process removes every ounce of wax. We render on shares.

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I am better able to supply the trade with
my Three-band Italian Queens, Colonies
and Nuclei than ever before. Send for circular and prices.

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We are now booking deliveries in June and July at the following prices, viz :

FROM PENN, MISS.		1	FROM TOR	ONTO, ON	rario.
Prices I and over I 6 12 Untested\$.85 \$4.50 \$8.00 Warranted	25 to 100 \$.65 each .75 1.05	1.35	5.83 7.80 5.81 6.81	\$ 9 25 10.75 14.75	25 to 100 \$.75 each .85 1.15

POUND PACKAGES WITH UNTESTED QUEENS

6 to 25 each	50 over each
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Prices on full colonies and nuclei quoted on request,

We supply THE ROOT CANADIAN HOUSE, 54 WOLSELEY ST., TORONTO, ONTARIO, CANADA, with large shipments almost daily during the above months, frequently moving almost a car of packages to them at a time. This is the most successful way of serving Canadian trade. This firm has our entire Agency for the Dominion, and all Canadian business should be addressed to them unless you wish shipments made direct from Penn, Miss., address us.

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THE PENN COMPANY, PENN, MISS., U. S. A.

Bee Supply Department

Orders shipped day received

Our warerooms are loaded with Lewis Beeware

Everything at factory prices

Send for catalog

Wax Rendering Department

We do perfect wax rendering. It will pay every Beekeeper to gather up all his old combs and cappings and ship to us. We charge 5c a pound for the wax we render and pay the highest cash or trade price.

THE FRED W. MUTH COMPANY

(The firm the Busy Bees work for)

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Queens and Bees from the Cotton Belt Apiaries

Three-banded Italians only. We are now booking orders for May, and June deliveries at the following prices, viz:

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1	6	12		. 1	10
Untested 3 .75	\$4.00	\$ 7.50	1-pound package, wire cage, wi	th-	
Tested 1.00	5.70	10.75	out queen	\$1.50	\$1.25
Breeders 3.00 to	\$10.00 ea	ch.	2-pound package, wire cage, wi		
Virgins 3 for \$1	.00.		out queen	2.25	2.00

I-frame nuclei without queen, \$1.50; 2-frame nuclei without queen, \$2.75; 3-frame nuclei without queen, \$3.50.

When queens are wanted with nuclei or packages add queens at prices quoted above Write for discount on larger quantities booked early.

We guarantee safe delivery of bees and queens, and reasonable satisfaction. Twenty-years experience. No disease. Health certificate with every shipment. Write for testimonials and references if desired.

To avoid disappointment in the spring be sure and place your order NOW.

The COTTON BELT APIARIES, Box 83, Roxton, Tex-

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Poultry Supplies

Poultry supplies of all kinds, best automatic grain feeders, fountains, feed troughs, dry mash hoppers, bone nills, exhibition and shipping coops, leg bands, shell, grit, bone, meat, foods, and remedies ANYTHING YOU VANT. Also Pigeon, Kennel and Bee Supplies. Circular free.

Eureka Supply House Dox B-403, - Aurora, Illinois



PATENTED WRIGHT'S FRAME-WIRING DEVICE

Most rapid in use. Saves cost of machine in one day. Tighter wires, no kinks, no sore hands. Price, \$2.50, postpaid in U. S. A. G. W. Wright Company, Azusa, Calif.

Why Not Get What You Want, And When You Want It?

The Atchley Queens and Bees need no recommendation to the beekeeping world, They have been buying them for FORTY YEARS, AND ARE STILL DOING IT.

BOOK YOUR ORDERS NOW!

One-pound package, \$1.40 each; 25 for \$32.50; 100 for \$125. Two-pound packages, \$2.25 each; 25 for \$52.50; 100 for \$210. Two-frame nuclei, \$2.30 each; three-frame, \$3.25 each. No queens. Untested queens, Italian or Carniolan, \$1.00 each, or \$10 per dozen; 100 for \$70 A big lot of fine tested queens cheap. Write for prices. Prices on bees and queens in large lots quoted on application. application.

WM. ATCHLEY, Mathis, Texas The Texas Bee and Honey Man

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Have no superiors—"There's a reason." Are Mendelian bred, good qualities accentuated. Gray Caucasians, most gentle of all, prolific, hardy, vigorous, disease resistant, white comb builders—they deliver the goods. ITALIANS, 3-banded line bred pedigreed, need no boosting; they speak for themselves. Prices on application at either aplary.

CHAS. W. QUINN 609 W. 17th Ave., Houston Heights, Tex. Gen. Del., Ft. Myers, Fla.

NEW BINGHAM BEE SMOKER

In 1878 the original direct draft bee smoker was invented and pat-ented by Mr. T. F. Bingham, of Michigan. Mr. Bingham manufactured the Bingham Smoker and Bingham Honey Knife for nearly singham Honey Knile for nearly thirty-five years, and in 1912 becom-ing a very old man, we purchased this business and joined it to our established business of beekeepers' supplies and general beeware. Those who knew Mr. Bingham will join us in saying that he was one of the finest of men, and it gives us much pleasure to help perpetuate his name

in the beekeeping industry.

Bingham Smokers have been improved from time to time, are now the finest on the market, and for nearly forty years have been the standard in this and many foreign countries. For sale by all dealers in bee supplies or direct from the manufacturers. in bee sur facturers.



A. G. WOODMAN CO., Grand Rapids, Michigan



WOODMAN'S SECTION FIXER

A combined section press and foundation fastener of pressed steel construction. ONE OF THE GREAT ADVATAGES this machine has over all others on the market, in the putting in of top and bottom starters is, YOU AL-WAYS HANDLE LARGE PIECES OF FOUN-DATION. You know how hard it is to set small narrow pieces for bottom starters, With this machine a large piece of foundation is set and the hot plate is again used to cut it off, leaving the narrow bottom starter. What is left of the large piece is then set for the top starter.

Price of machine, \$2 50; with lamp, \$2.75. Weight, 5 lbs.; postage extra.

Another advantage is the section always comes away from the machine right side up with the top starter, large piece, hanging down, and does not become loosened in reversing as with other machines.

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Do not wait longer, but secure your honey packages at once. The tin plate situation is becoming more serious from day to day. Freight traffic is slow and uncertain. We placed our order for tin plate for our 1018 Bee Smoker Trade some time before a state of war was declared. We dared not wait longer, for fear we could not secure it at all. Our three year contract on tin honey packages is still being honored, and runs until Jan. 1, 1019. We are saving money for carload buyers and others of smaller lots, Send us a list of your requirements. Do not delay. Act at once.

Friction Top Tins

2	lb. Cans.	21/2 lb. Cans,	3 lb. Cans,	5 lb. Pails,	to lb. Pails
Cases holding	24	24	****	12	6
Crates holding			***	50	50
Crates holding	100		100	100	100
Crates holding	603	450	****	203	113

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BEE-SUPPLIES of all kinds; catalog free. Send 25c for 90-page book on how to handle bees. Discount for early orders. Honey for sale.

J. W. ROUSE, Mexico, Missouri

SELECT ITALIAN BEES

by the pound. Nuclei QUEENS. 1917 prices on request. Write,
J. B. HOLLOPETER, Rockton, Pa.

Miller's Strain Italian Queens

By return mail, northern bred from my best superior breeders. In full colonies: for business: three banded; gentle; hustlers; winter well; not inclined to swarm; roll honey in. Unt., \$1 00; 6 for \$5.00; 12 for \$0.00 Sel. unt., \$1.25; 6 for \$5.00; 12 for 11. Virgins 1 to 3 days old at 50c each at senders risk. Safe arrival and satisfaction guaranteed in United States and Canada. Specialist of 20 yrs. experience.

ISAAC F. MILLER, Brookville, Rt. 2, Pa.

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The "falcon" GUARANTEE. Every hive, every super, every crate of sections, every pound foundation every article, and every queen leaving the "falcon" plant goes out with our "absolute satisfaction or money back" guarantee. For more than a third of a century we have stood behind everything we sell. If anything is wrong or not just what you thought it would be, we'll appreciate it if you write us, and we'll make it absolutely right at our expense. Our satisfied customers are to be found everywhere and are our best advertisement. "Once a customer always a customer," is synonymous with the name "falcon"

The beekeepers' past experience when "short" should have taught him that it's a "wise move" to get hives, sections and supplies ready in the next two months. We will be glad to quote on "falcon" supplies if you will send us an approximate list of what you will require for the coming season.

Red Catalog, Postpaid

Dealers Everywhere

"Simplified Beekeeping," Postpaid

W. T. FALCONER MFG. CO..

Falconer, New York

Where the good bee-hives come from

HEADQUARTERS FOR BEE SUPPLIES ROOT'S GOODS AT FACTORY PRICES

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KENTUCKY

TENNESSEE

We carry a large and complete stock of bee supplies, and are prepared to give you prompt service. We have just received several carloads of new fresh supplies. Send for our catalog.

C. H. W. WEBER & COMPANY, 2146 Central Ave., Cincinnati, Ohio

Tennessee-Bred Queens

45 Years' Experience in Queen-Rearing

Breed 3-Band Italians Only

Nov. 1 to May 1			May I to June I			to Jul	y I	July 1 to Nov. 1		
I 6						6				
Untested \$1.50 \$ 7.5	0 \$13 50	\$1.25	\$ 6.50	\$11.50	\$1,00	\$ 5.00	9.00	\$.75	\$ 4.00	₹ .75
Select Untested 2.00 8.	0 15.00	1.50	7.50	13.50	1.25	6.50	12.00	1.00	5.00	
Tested 2.50 13.	0 25.00	2.00	10.50	18.50	1.75	9.00	17.00	1.50	8.00	15.00
Select Tested 3.00 16.	00.00	2.75	15.00	27.00	2.50	13.50	25.00	2.00	10.00	18.00

Nuclei (no queen) I fr., \$1.50; 2 fr., \$2.15; 3 fr., \$2.75; 4 fr., \$3.50; pure 3-band Italians. Select queen wanted, add price.

Capacity of yard, 5000 queens a year

Select queen tested for breeding, \$5.00

The very best queen tested for breeding, \$10.00

JOHN M. DAVIS, SPRING HILL, TENN.

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Write for price list and booklet descriptive of our

HIGH GRADE
ITALIAN QUEENS
And Boes by the Pound
JAY SMITH

1159 DeWolfe St. Vincennes, Indiana ine

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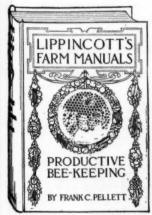
2	F. O. B. Hamilton or Keokuk, Iowa -lb. crates of 612 per crate	F. O. B. Chicago \$23.00 1.15
	4-lb. crates of 450 per crate	20.40 1.25
5 5 5	-lb. crates of 100 per crate. 7.75 -lb. crates of 200 per crate. 15.00 -lb. cases of 12 per case. 1.10	7.40 14.75 1.05
10 10	-lb. crates of 100 per crate	11.00 .80
60 60	-lb. wire bound cases of 1.	.48 .80

BUY NOW

As our contract with the tin can company closes on July 1st, your orders should reach us not later than June 20th, so as to give us ample time to place your order with the factory. After July 1st, prices will advance to a considerable extent.

Hamilton, Illinois DADANT & SONS,

A BEE BOOK FOR THE PRACTICAL MAN IS "PRODUCTIVE BEEKEEPING," by Frank C. Pellett



Mailing Weight, 3 Pounds

For Years State Bee Inspector for Iowa and a Practical Beekeeper

One of Lippincott's "Farm Manual" Series, this book of 326 pages is finely gotten up, finely bound, and has 134 illustrations, nearly all original with the author. Price, \$1.75.

READ THE CONTENTS BELOW

- I. BEEKEEPING A FASCINATING PURSUIT 8. FEEDING.
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Productive Beekeeping Langstroth on the Honey Bee

Both postpaid Productive Beekeeping for only \$3.00 "Fifty Years Among the Bees"

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American Bee Journal, Hamilton,

Lewis Sections

HAVE

INDIVIDUALITY

Because they are in a class by themselves—They are not like other sections—Very rarely do they break in folding—In fact, one of our customers writes us that he has put up (folded) thirty thousand Lewis Sections in a season and had not found one SECTION in the whole lot that was not perfect—Beekeepers everywhere, no matter what their preference may be for hives or other bee equipment, agree that when it comes to sections, Lewis Sections are supreme. This is

BECAUSE the material which goes into a LEWIS SECTION is of the right kind, especially selected for the purpose. The stock is sorted and resorted—the discolored stock thrown out, leaving only the whitest material to go into LEWIS SECTIONS.

BECAUSE the V groove, which is the most important process in the manufacture of a section, is made just right. In the LEWIS SECTION it is cut just deep enough so that the section will not break in folding. The LEWIS SECTION expert has been supervising the manufacture of LEWIS SECTIONS for over thirty years.

BECAUSE the finishing of the section is given the utmost care. The LEWIS SECTION is polished on both sides in a double surfacing sanding machine designed in the Lewis plant especially for this purpose. It insures the uniform thickness of each and every section. The dovetailing of the ends is smooth, clean and just right.

BECAUSE even after LEWIS SECTIONS are completely manufactured, the packing is considered a very important part of the marketing. All LEWIS SECTIONS are put up in regular standard packages containing a good full count. A tight wooden box is used, entirely enclosing the contents so that no discoloration from air can occur, no matter how long the sections are carried in stock. The package is also strongly braced at all corners, insuring delivery in good order.

At the same price you pay for other standard makes of sections you get all of the above when you buy Lewis Sections

INSIST ON LEWIS SECTIONS—LOOK FOR THE BEEWARE BRAND

G. B. LEWIS COMPANY



Watertown, Wisconsin

Order from your nearest distributer



Vol. LVII.-No. 6

HAMILTON, ILL., JUNE, 1917,

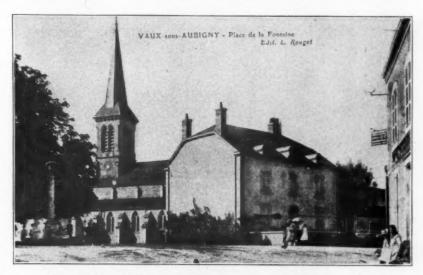
MONTHLY, 1.00 A YEAR

The Centenary of Charles Dadant

HARLES DADANT, whose portrait was given the place it now occupies at the head of the columns of the American Bee Journal, by the former editor, in June, 1906, in company with that of Father Langstroth, whom he seconded and supported eagerly in the advancement of beekeeping, was born at Vaux-Sous-Aubigny, a village on the confines of Champagne and Burgundy, May 22, 1817, just a hundred years ago. A short account of his life, showing the obstacles he met and the success he finally achieved, may encourage some of our young men, who are similarly laboring under difficulties, to keep up the struggle and perhaps also succeed.

He was given an education for the purpose of becoming a physician like his own father. But he had the tastes of a nature lover, or, as he explained it himself in homely words: "J'avais des gouts de paysan" (I had the inclinations of a peasant). That is to say, he loved life in the fields and the woods, plants, flowers, bees, birds, etc. He learned early how to graft, and when about 12 years old amused himself by budding beautiful varieties of roses upon wild rose bushes in the woods, so that a few years later,

while roaming the woods with some boys and girls of his age, he astonished the girls and pleased them by leading them to a harvest of most beautiful roses, in a remote corner of the forest. His liking for bees induced him to own bees early. In the American Bee Journal of 1868, the third volume, he gave interesting reminiscences of his amateur beginnings in beekeeping.



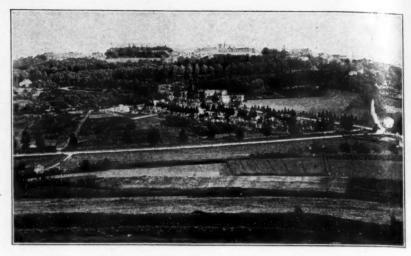
THE SAME SPOT IN 1913, VIEWED FROM THE OTHER SIDE



CHARLES DADANT'S BIRTHPLACE

Circumstances and the necessity of earning a living compelled him to go into the wholesale dry goods business, first as a clerk and later as a partner in the firm, located in the ancient city of Langres.

This old city, built by the Romans, under the name of Andomatunum, over 2,000 years ago, is situated on a high plateau which makes the continental divide of the French streams running to the Mediterranean, the Atlantic and the North Sea. The city towers above the surrounding country, is surrounded with high walls and railroad lines. It was once the capital of the Lingones, a Gallic tribe. It was a fine center when stage coaches ascended to it by a winding road. But the advent of the railroad, in 1856, which benefited the cities of the valley, left the proud fortress in isolation. Business went down and the wholesale dry goods firm had to close its doors. Seven years later, Mr. Dadant, reduced to poverty, emigrated to America with his family and set-

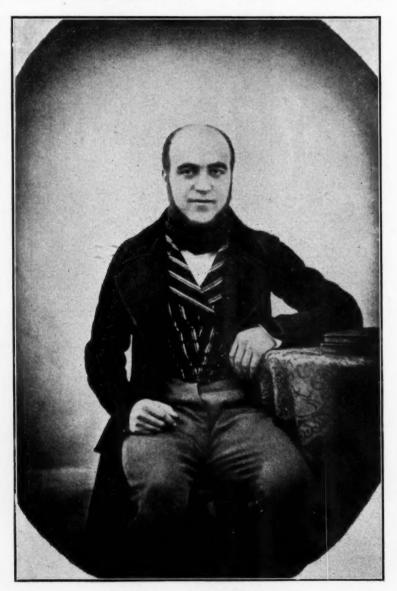


LANGRES-ONE OF THE OLD FORTIFIED CITIES OF FRANCE

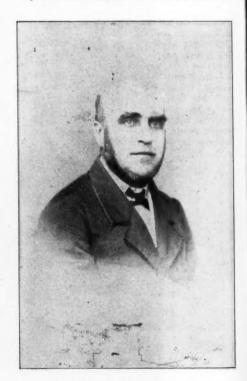
tled in Hamilton, hoping to be able to principal crop of the land of his birth follow his old love for country life and especially of his native village in and intending to grow grapes, the Champagne.

But grapes proved unprofitable. In 1864 he obtained from a friend two hives of common bees in ordinary boxes. These he transferred first in the clumsy movable-frame hives he had known in Europe. A little later, having read in the American Agriculturist of the success of Quinby, he procured his book, then that of Lang-stroth, and finally transferred all his bees into Quinby hives, which he later enlarged and improved into what is now the Dadant hive.

His first years in America were very strenuous. He had no knowledge of English and was 47 years old, at his arrival here. With uncommon tenacity he decided to learn English by his own effort as he had learned to



CHARLES DADANT AT 30, IN 1847



CHARLES DADANT AT 55

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graft roses in his boyhood. He bought a pocket dictionary and subcribed to the New York Tribu... Laving no other way of learning the news, he slowly and persistently ranslated the information of the weekly happenings with his dictionary. Within a short time he was able to read from an American paper the current news so readily that he often read them to his wife in French as if the paper had been printed in the French language. That quick grasping of the language enabled him to write for the American Bee Journal, as soon as he began receiving it.

In 1867, his apiary increased rapidly, so rapidly that he found himself short of empty hives and needing more. Lumber was high and his purse was empty, so he tore up the floor of an attic which was made of wide boards of one-inch lumber, in the log house inhabited by the family, to procure lumber for hive making. The reward came the following year, 1868, when he harvested his first large crop. We have no data as to its quantity, but it amounted to several thousand pounds and honey sold at a high price then.

and honey sold at a high price then.

In 1872 Charles Dadant made a trip to Italy to secure Italian bees. He had bought his first Italian queen in 1866, of an Ohio breeder, A. Gray. Then he tried importing, succeeding fairly well with Dr. Blumhoff, of Biasca, Italian Switzerland. But the death of this able breeder and repeated failure with other men, determined him to cross the ocean himself. He had been writing articles on American beekeeping which were appreciated and was made an honorary member of the Italian association. So he was already well known, and this was sure to help his success. But nevertheless, the importations of that year were a dead failure. However, failure spells success for the indomitably persistent

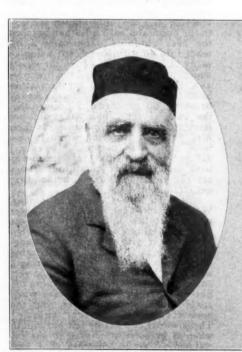
man. The faults had been discovered, the proper methods traced. In 1874, after careful instructions, followed with great exactness, Florini, of Monselice, succeeded in sending him about 100 queens with less than 5 per cent loss. Italian queens direct from Italy were supplied to nearly all the American breeders within two or three years. Long before that time, Parsons, Langstroth, Grimm and others had made importations, but none on so large a scale and none so successfully and cheaply, for Adam Grimm imported his Italian bees in full colonies at great expense. But others soon followed. Jones, of Canada, made a trip to Egypt, Cyprus and the Holy Land and various races of bees were brought to America.

Charles Dadant was an indefatigable writer. Anxious to see the Europeans adopt the practical methods of our successful teachers, Langstroth and Quinby, he sent articles on beekeeping to the French, Swiss and Italian bee magazines. Hamet, the publisher of the French "Apiculteur,"

ridiculed him, but Mr. Dadant overwhelmed him with such convincing arguments and sarcastic replies to his taunts that he finally refused to forward his magazine to him. He lived long enough to find himself flooded with the American methods, and when he died his little magazine had given in to the current of beekeeping progress. Bertrand, the Swiss publisher who only lately died, began in 1879 the publication of a "Bulletin d'Apiculture" of which Mr. Dadant was one of the principal contributors and the name of which, at his suggestion, was later changed to that of "Revue Internationale D' Apiculture."

In 1874 Mr. Dadant published in the

In 1874 Mr. Dadant published in the French language a "Petit Cours d'Apiculture." In 1885, Mr. Langstroth, who was unable to continue the revision of his classic work "The Hive and Honey Bee," was advised by Chas. Muth, of Cincinnati, to put this work in the hands of the Dadants. The intention was to have the work done under the supervision of Mr. Langstroth. But an old nervous trou-



CHARLES DADANT AT 83



MRS. CHARLES DADANT AT 25, IN 1847

ble, which had compelled him for years to abstain from all brain work, again stopped this project. The accompanying manuscript letter explains how, after making arrangements for the revision, Mr. Langstroth was compelled to leave this work entirely to his revisers.

The first edition of the Langstroth-Dadant "Hive and Honey Bee" was published in 1888. In 1891, a French translation by Charles Dadant, was published in Geneva, Switzerland, under the management of Edouard Bertrand. This has gone through one

revision and three editions. A Russian translation by Kandratieff, of Petrograd, was published in 1892, of which four editions have appeared. A Spanish translation by Pons-Fabregues, of the latest revision, was published in Barcelona, in 1915.

lished in Barcelona, in 1915.

In 1895 Mr. Dadant lost his loving wife, then aged 73 years. He lived till July 16th, 1902, surrounded by his children and grandchildren, with the satisfaction of seeing the full success of his undertakings and a continuation of his work in the younger generations.

erations. Jours respectfully

CHARLES DADANT'S MOTHER, IN 1865

An Amusing Incident in Connection With Bee Escapes

BY G. C. GREINER.

HEN taking off supers by means of the bee-escape it sometimes happens that for one reason or another bees have not made use of the escape as the beekeeper expected they would. As a rule, I apply the escapes during the latter part of the day, and find my supers generally free from bees the next morning. But if they have not left their supers by that time, we can be quite sure that there is something wrong, either with the escape or with the bees. A few scattering bees in a super does not matter. There are always a few stray ones. But when I find a super full of them, when I see at first glance that there is trouble of some kind, I simply cover such supers up again and leave them until the next day. That most always clears them, unless the escape has become clogged or there is brood in some of the sections.

Last fall, when sorting the contents of some of my last supers, I found one super from which, it seemed, hardly any bees had passed through the escape. Some of the sections were completely covered with bees, while others had only scattering ones. To gather up my supers I run the wheelbarrow along the back of the hive rows, where on the previous night the escapes have been placed and load them one after another onto the rig. When the load is completed—I generally take four or five at a time—I take them to the honey house and set them endwise on the floor near the screen-door. The few bees that are left in the supers usually take wing and go to the screen-door by the time I am ready to look their

when I gathered up one of my loads I had not noticed that one of the supers contained so many bees until I was about to empty it. Under similar circumstances I had often taken sections to the door and with a feather brushed the bees outdoors. The same I intended to do with these; but being so many more to handle I took the whole super outdoors and used the first hive as a table on which to set the section holders during the operation. As the brushing off proceeded I noticed that the bees, as they took wing, did not immediately take a line towards their hive, but kept hovering around me a little more than natural. However, I did not consider that very strange as bees under similar conditions always act somewhat bewildered up.

get straightened up.

Just then I was called to dinner.

When I entered the house my daughter
met me at the door, and looking me
over wonderingly said: "Father, what
is the matter with you, you are all covered with bees." "Well," I replied, "what
of it, sweep 'em off." So, she taking a
wing, we both stepped onto the veranda to proceed with the sweeping off.
She had hardly begun her task when
again she remarked: "Yes, and the
bees are all under your sweater."
These words had hardly left her mouth
when in greatest wonderment she exclaimed: "Well! I declare, your hippocket is full of bees." And, sure
enough, I could hear them buzz.

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Fermenting Honey

BY W. D. NULL.

hat was a nice predicament, and to di pose of that pocket full of bees was so newhat of a puzzle. To dislodge th m would have been an easy matter shaking the garments upside down had not been in them, but I could t very well shake myself with my t in the air. After considering and pating the situation most thoroughly I finally decided to go back to the honey house where I could separate myself from any or all of my garments unmolested. This accomplished, it was comparatively easy, standing at the open door, to shake the bees outdoors, although scantily attired as I was, the situation was none too enjoyable; at times a little more protection to my anatomy would have been more acceptable.

A solution to the strange behavior of the bees in this case is not difficult of the bees in this case is not difficult to find. Undoubtedly the queen was in that super when it was taken from the hive, and when the bees were swept from the sections she, too, had to take wing. Accidentally she lit on my body near the hip-pocket, and its bee scent (I always carry my hive-tool in that pocket) attracted her in that direction to look for a hiding place. direction to look for a hiding place. Having once entered the pocket it was only a natural consequence that the bees followed her. La Salle, N. Y.

Second Hand Cans

BY A. F. BONNEY.

YEAR ago I conceived the bright idea that I could so fix my tin containers that they would not rust, and thereby save them. Honey, I argued with myself, is always slightly acid, enough so that it will redden blue litmus paper at a temperature of 70 degrees in far less than one minute. It is this acid which attacking the tin, rusts it, far sooner, at any rate, than moisture will.

The cans we use are but thinly coated with tin, just enough of the metal to protect the steel a reasonable time, and when drained will soon eat out, exposing the steel to the action of air and moisture.

I took a new can, put into it a lump of paraffin, enough, I thought, to cover the bottom and an inch of the sides, melted it over a hot fire, rolled the can melted it over a hot hre, rolled the can about and set down to cool, I next put in some honey and poured it out. I recently dissected this can, and the protected parts were as clean and bright as when new. At the same time I took a second-hand can, washed it, dried it well over a good heat, and coating it as was the first one, treated it the same. The result was the same. I see no reason why we cannot coat

I see no reason why we cannot coat the whole inside of the tin containers, and thus make them available for second and even third use. The expense would not exceed, for wax and time, two cents per can, but if ten cents it would still be a good investment.

Buck Grove, Iowa.

[The experience of Mr. Pellett at Chicago, where he found that honey in second-hand cans sold for 2 cents less per pound than that in new cans, would per pound than that in new cans, would indicate that unless we can make our cans look new on the outside as well, it is a loss of money to use second-hand cans. But they can probably be used for other purposes, and Dr. Bonney's idea may help save them.—EDITOR.]

MR. EDITOR, I notice in your write-up in the April number, your visit to Mr. Kenyon, that he has 'trouble with "ferment in the cells." Is he sure it is a ferment? Do all gases come from fermentation? That is a very live question in this section, and has been since we have pro-duced honey crops here. It shows here every year, some years worse than others. We have thought it came from

others. We have thought it came from a plant, and for a long time blamed it to cotton honey and also to several other plants. We also put the blame on the weather, but had to abandon that idea also.

We simply do not know where to put the blame. It costs this section thou-sands of dollars. That it is not a ferment I am sure, as we extracted sam-ples and sent to the Department of Agriculture at Washington to examine. e sorted out all the extracting combs in one part of one yard that showed the "blow out," as the boys call it, and extracted a 600-pound tank of it. After reacted a ovu-pound tank of it. After letting it stand some weeks, we sent one 2-pound sample from the top of the tank and another from the bottom and asked Dr. Phillips to have the chemists find out what was the trouble. They sent hack an analysis of both They sent back an analysis of both samples and pronounced it of good

quality and nothing wrong with it, and yet the foam rose several inches on top of that tank. The honey was good, but it spoils the appearance of sections, as it blows out the cappings and leaks out. I have known a 13-ounce section to leak out to 4 ounces.

When it is extracted and used liquid, it seems all right. But when it granu-lates, it generates enough gas to blow out the lids of friction-top cans. When it is liquefied it is all right again until

it is inquenced it is all right again until it commences to granulate again. It granulates very quickly.

It seems to me this is a chance for the Department of Agriculture to put some investigator to work to the advantage of a big section of country. We have so many plants here that are common in New York and so many that are not, that by checking one locality against the other the guilty plant may be found out and the trouble may possibly be overcome. There are many plants upon which our bees work that are not identified in the crop and may yet have an influence on the re-

Mr. Harte, who had charge of the Allenville yards, where he produced one year 19 tons of honey from 500 col-onies, lost heavily from the "blow out" that year. He spent a great deal of time for six years trying to find the cause, but he died as ignorant of it as the rest of us. Demopolis, Ala.



DR. FRANCOIS DADANT, FATHER OF CHARLES DADANT.



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Dr. C. C. Miller, Associate Editor.
Frank C. Pellett, Staff Correspondent.

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THE EDITOR'S VIEWPOINT

The Sugar Situation

The condition of the sugar market has a great influence on the honey market, as every one knows. The Bureau of Crop Estimates at Washington furnishes a report of sugar conditions, production, imports and exports. It is too lengthy to find place in our columns, but a few facts gleaned from it will be of interest. The consumption of sugar in the United States from 1913 to 1916 inclusive, has been 80.7, 90, 84.4 and 81.2 pounds per capita. During that time, the production and imports have steadily increased from 6,590,000,-000 pounds to 7,618,000,000. But the export in 1916 over 1915 is 584,000,000 pounds greater. So the stock on hand is reduced. Besides there is a probability of great demand in Europe, and unless submarine activities make the exports unsafe, there will continue to be an increased demand

We can conclude safely that, although no shortage of sugar need be feared, the price will probably remain firm and the demand good. Firm prices in sugar will make firm prices in honey without doubt.

New Bee Books

Two new bee books have recently been issued from the American Bee Journal press. "First Lessons in Beekeeping," by C. P. Dadant, editor of this Journal, was issued early in the year. Although the book retains the same title as the old book published by George W. York & Co., of Chicago, several years ago, it is in fact entirely new. This is entirely rewritten and is not a mere revision. Some of the larger volumes go into detail with so many different methods of doing the same work as to confuse the novice. This book, which contains 167 pages, is nicely bound in cloth, is designed to give the fundamentals which every beginner is bound to know in order to be successful. There are 178 illustrations which explain the text fully.

The book begins with the natural history of the bee. After describing the bee family and outlining the part played by the different members in the economy of the hive, the products, honey, wax, propolis, pollen, etc., are described.

The reader is led along easy stages from the bee family to the establishment of an apiary, care of the bees and the selection of equipment. No important part of the beekeeper's program is overlooked. Simple directions for harvesting the crop, wintering the bees and detection and treatment of disease are given.

The second book is "A Thousand Answers to Beekeeping Questions," by Dr. C. C. Miller, associate editor of this Journal. All our readers are familiar with the Question and Answer Department conducted by Dr. Miller for more than 20 years. The novice and man of experience have alike brought to this department their most perplexing problems with the result that a wonderful fund of beekeeping information has accumulated in the files of the American Bee Journal. Since the back numbers are accessible to but few, and to find the right number to reach a specific problem is not easy even to those having the files, it seemed desirable to rearrange this material in convenient form. The task of covering all the issues since 1895, and sifting out the questions most frequently asked, together with all others of general interest fell to Maurice G. Dadant. Some questions have been answered dozens of times, and the answer covering the ground most completely has been chosen. Some subjects are discussed from several different angles, thus coving the ground very fully. The subject of increase occupies eight pages, answering 22 questions. In addition several more pages are devoted to swarming and swarm prevention.

One is surprised to find the amount of information that has been crowded into this book. It is not designed to supplant the text books but to supplement them. The beginner would hardly find it just the book to read through, consecutively, to learn the fundamentals of beekeeping, but after reading the "First Lessons in Beekeeping," he will find it just the thing to answer the questions that will present themselves daily.

Doctor Miller's "Thousand Answers to Beekeeping Questions" is a cloth-bound book of 276 pages. The two books will make a capital combination for any beginner, and every beekeeper young or old will find the answer book of everyday service.

F. C. P.

Getting Crop Reports and Prices

We call the attention of our readers again to our crop and market page in the back part of this magazine. The general trend of all food prices is upward and the price of honey is bound to advance with them.

The collection of prices and price ideas on honey is sometimes a puzzling matter, since some few reporters tend to make the situation look roseate or glum, to suit selfishly their own ends.

For instance, in our last reports we had two from beekeepers announcing that prospects were the brightest ever that the crop would be phenomenally large and the prices of honey correspondingly low. Both of these reporters suggested 7 cents as a liberal price for white extracted honey. Had we not known that both of these parties were in the market for many cars of honey, the influence on our summary would have been greater. No doubt that there are many also who will report when they have good crops, but neglect to report when the crop is a failure.

We have had some suggestions that we publish reports from individual sources instead of a summary. However, for the reasons given above and also because many will give more full reports when they are assured that no names will be mentioned, we believe the summary, if conducted properly, is better.

A Legal Service Department

For some time past we have been considering the establishment of a Legal Service Department of the American Bee Journal. There are many ways in which such a department may be of service to our readers. We cannot of course offer free legal services except advice, but we hope that our readers will consult us freely in regard to any legal problem that confronts

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them as far as it pertains to bees or any phase of beekeeping. If your town council undertakes to pass an ordinance prohibiting the keeping of bees with a the limits of the town we will be glad to take the matter up with them and do what we can to protect the rights of the beekeeper. There are many other questions which we can help to answer, and this service will be rendered freely to every subscriber of this Journal.

The Service Department will be in charge of our staff correspondent, Mr. Frank C. Pellett, of Atlantic, Iowa, who is a licensed attorney in the State of Missouri, although he gave up all thought of practice ten years ago in order to live in the country and keep bees. Questions of general interest will be answered through the Bee Journal, other questions will be answered direct. Letters may be sent direct to Mr. Pellett or to this office.

Beekeepers who are interested in legislation for the benefit of the industry may also call upon us for suggestions in regard to the form of drawing bills and also organizing a campaign to get them passed. Mr. Pellett has had considerable experience in legislative matters, and should be able to give valuable assistance in such cases. It was the demand for assistance in such matters from our readers that led us to establish the Legal Service Department-On the urgent request of Iowa beekeepers we sent Mr. Pellett to Chicago to attend the rate hearing on comb honey. Our readers will remember that as a result of this hearing the freight rate on comb honey in the West was greatly reduced. At the request of prominent beekeepers we also sent Mr. Pellett to Washington in company with Mr. Root to urge upon the members of congress the importance of extension work in beekeeping. A special appropriation sufficient to place three men in the field was the result of the combined efforts of this committee and of the other beekeepers working in the same direction.

Calls of this kind are becoming increasingly frequent and demonstrate the need of a special source of information and assistance in such matters. President Jager, of the National Beekeepers' Association, has recently reappointed Mr. Pellett, as a member of the legislative committee of the National, and has outlined a rather elaborate program of work to be undertaken for that organization in the interest of beekeeping.

It should be borne in mind that we do not propose to start new things or promote litigation, but only to offer assistance in bringing to a successful

termination such efforts as have been undertaken by the beekeepers and in which they manifest an interest. There are several States which have no inspection laws; there are places where the beekeeping interests should be protected from fruit growers who spray while trees are in bloom, there are questions of freight rates, adulteration and misbranding of honey and many other problems affecting the beekeeper which need attention. When you meet these problems we offer you our assistance.

College Work in Beekeeping

Mr. Pellett announces to us that Prof. Millen has now 75 girls taking the special course in beekeeping at Ames College. Let the good work go on.

The Price of Beeswax

The price of beeswax is greater than it has been since 1884, or for 33 years. Its high price then was caused by the new use of comb foundation. But the high prices lasted only a few months. Now, although beeswax is fairly abundant, its price is evidently a reflection of the price of all commodities.

This is a two-edge sword, for if the beekeeper secures a remunerative price

for his beeswax, he has to pay also a higher price for foundation. But it indicates a tendency to the firmness in price of honey for the coming winter.

Inspection in Michigan

A circular letter to Michigan beekeepers from their inspector, Mr. B. F. Kindig, announces that there is available for inspection \$1500 more than in 1916. This money becomes available July 1.

There is also a new law in Michigan making it a misdemeanor punishable by fine to keep bees in box-hives or hives with crooked combs.

Wide Spacing for Extracting

Since the Bee Journal advised wide spacing of combs in the extracting super, I use only seven frames for the eight-frame hives, and I find that this is a gain. The bees will build the combs very thick, and I find that in this manner seven combs will give even more honey than eight combs in the same super would have given. Besides this, I need to uncap only seven combs in the eight-frame hives, and should I be short with combs, then I am able to supply eight supers instead of seven, with the same number of combs with no shorter crop of honey from this source. BRO. AL VEITH.

St. Meinrad, Ind.

Orford. gen 6. 1886

Dear PrindsI am somy not to be able
to report some propers-I am stryfring
against ble encorohnals of thet dread
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LANGSTROTH'S LETTER TO CHAS. DADANT REPORTING INABILITY TO HELP IN REVISING HIS BOOK

The New Iowa Law

BY FRANK C. PELLETT.

N my Fifth Annual Report as State Bee Inspector of Iowa, I proposed that some radical changes be made in the inspection law. It was proposed that the appointment of the inspector be taken out of politics and left to the State Board of Education the same as State Board of Education the same as all college professors are selected. It was further proposed that a man be employed on full time and that questions of marketing, wintering and other beekeeping problems be given the same attention that is given to the control of disease. When the proposed changes were presented to the Iowa beekeepers at the State convention it was distinctly stated that under no circumstances would I be a candidate for the new position, as I did not wish to seem to be striving to make a better position for my own benefit. After the beekeepers had endorsed

the proposed change in the law the matter was taken up with the Attorney General and the President of the Agri-General and the President of the Agricultural College, and a bill drawn which covered the ground of the proposed changes and yet which eliminated things to which either the Attorney General or the college objected. It was only the day before adjournment of the only the day before adjournment of the Legislature that the final action was taken when a conference committee of the house and senate harmonized a difference in regard to the appropriation for the support of the work. Their report was adopted by unanimous vote of both houses.

Since there is some misunderstanding of the things which I first proposed which the new law provides for judging by the editor's comments and also those by Mr. Bender, it may not be out of place to give some details of the provisions of the new law which carries out the suggestions as made in

my report to the governor.
On page 232 of Productive "Beekeeping," I made this prophecy: "Within a few years the inspection work, instead of being under direction of a separate State department, as now in many States, will be organized in connection with extension work in beekeeping.

Iowa, as far as I know, is the first State to adopt this plan. Judging from the comments that have appeared in the American Bee Journal, there seems to be an impression that we proposed to abandon inspection for extension. (See page 92). Rather have we pro-posed that it be enlarged and that the limited funds available be expended more efficiently by giving demonstra-tions to groups of beekeepers rather than by going through every hive in a certain limited number of apiaries. Our new law requires the State apiarist to inspect bees suspected of being affected with foulbrood or other contagious or infectious disease common to bees, on written request of one beekeeper. The old law required such request to be signed by at least three beekeepers. The new law provides a penalty or fine of \$50 or 30 days imprisonment in the county jail for failure to give proper treatment.

I did propose that the State office of bee inspector be abolished, and the inspection work placed under direction of the college. It was the political office which I suggested to be abolished, but I did not at any time propose that the work be abandoned. Misleading statements appeared in the newspapers and some misunderstanding has resulted. A careful reading of my Fifth Report should make it clear that at no time was it intended to do away with inspection entirely.

In addition to the provision for inspection, we have the added advantage of being able 'to call for assistance in marketing, wintering, or other prob-lems in the care of the apiary or the

production of honey.

There were some dangerous provisions in the old law. The appointment was left to the governor, and might easily have been given as a political reward, as is too often the case with appointive offices. Some other provisions of the old law, which might easily become a menace rather than a protection to the beekeeper, have been removed. The inspection laws in several of the States contain provisions which are unconstitutional in the opinion of very able lawyers, and if put to the test in the courts, they are likely to be overturned completely, leaving the beekeeping interests without protection. All these things have been considered in drawing the Iowa law, and, while it is not yet all that may be desired, we feel that it is a long step in advance for Iowa beekeeping interests. The old law remains in effect until July 1, at which time the office of bee inspector as at present constituted goes out of existence and the present inspector will be relieved of further responsibility for the work.

The new official is to be designated

as State Apiarist, and is to be appointed by the State Board of Education on the recommendation of the director of agricultural extension and the profes-sor of entomology of the college of agriculture. The college authorities have not yet announced their selection of a man to fill the place. It is very probable that a man already connected with the institution will be selected.

Atlantic, Iowa.

A Foundation Foulbrood Cure

BY A. F. WAGNER.

CALL my method the "Wagner Foundation Foulbrood Cure" be-cause the one and the same frame is used in every manipulation. In introducing this method for the cure of American foulbrood, I want to state that I have tried every known method advocated the last 15 years, both with and without drugs, having been inspector of apiaries for nine years. I found drugs an absolute failure.

The McEvoy treatment is all right when properly done. But it caused so much confusion from absconding and from stray bees entering healthy colonies that I gave it up. How many people make the remark: "The colony I treated is all right but I have several new cases." Exactly as I stated, too much confusion, bees from diseased colonies entering healthy colonies loaded with honey. The secret of the whole thing is to remove the diseased comb and honey with the least confusion possible.

METHOD OF TREATMENT.

Never undertake to treat diseased

colonies unless there is a reasonable flow of honey coming in, neither do any work at night, as in this treatment On the first day it is not necessary. remove all combs and honey except the brood. This should ordinarily leave five or six combs with brood. Insert in the center of this one frame containing about two inches of comb foundation, Leave in this condition about 48 hours. By the end of that period the founda-tion should be well drawn out and you are ready for the next operation. Now place a new or clean hive containing full sheets of comb foundation in the old location. Shake all the bees from the diseased comb and hive into this. Place the frame containing the drawn comb foundation in the new hive next to the wall. This should by this time be drawn out considerably. The diseased combs should be treated by the usual method. If you are prepared to melt this into wax by having proper utensils, well and good, otherwise burn them. By all means take no chances. Now you are to wait another 48 hours when you are to remove the frame containing the two inches of comb foundation and the two adjoining frames.

If you have followed the directions you may be absolutely certain that the disease is cured. Your bees have not been greatly disturbed, as they have had no such radical treatment as would cause confusion or the tendency to abscond. They have consumed all the diseased honey in drawing out the comb foundation, and with the consumption of the honey the disease dis-

appeared. Let me dwell a little longer on the Let me dwell a little longer on the frame containing the two inches of comb foundation. This is the entire secret of success. It answers a double purpose; first, prevention of absconding; second, storage of diseased honey which is removed in the last operation. Therefore, your success depends upon the frame. The strength of the colony will tell you how many combs should be removed with this frame at the last

treatment; usually one or two is advis-able, never remove more. In writing this I take it for granted that you are familiar enough with bee diseases that it will not be necessary to describe the symptoms. If you are in any doubt, call for the inspector. Above all be sure you are certain of the disease. This is an absolute cure

for American foulbrood. Imperial Valley, Calif.

Treatment of Foulbrood

BY GALE H. PATTERSON

HAVE read with much interest the article by J. L. Byer on American foulbrood in the American Bee Journal of November, 1916, and am surprised that he should still recom-mend the old method of shaking bees on starters and shaking again at the end of three days onto full sheets of foundation, as I supposed that this treatment had become obsolete in the east, and other method taken its place as they have in Colorado. We used this method for several years, as it was the only treatment we knew of at that time, and while it almost inva-riably effected a cure, we found that about half of the treated colonies would abscond after the second shake.

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Ve tried using a piece of queen-ex-cluder zinc over the entrance, and still the frequently would abscond leaving the queen and a few drones inside the screen. It seemed that the first shake wo ld throw the bees into great con-ste nation from which they would have jus: about recovered, when on the third day they were again shaken from their pretty drawn combs, leaving them in a condition so discouraged and hopeless that they were slow to begin work again if they did so at all.

way that sometimes when crowded to the limit with work, it was a question whether it would not pay to destroy the diseased colonies, entirely and at once, and be done with it. Some beekeepers of our acquaintance began the method of shaking diseased colonies directly on full sheets of foundation, without the second shake, but this did not always effect a cure, and to be obliged to treat them again that season made extra work besides reducing the colony to a nucleus. colony to a nucleus.

About this time we heard of the starvation method and tried it at once, shaking the bees into an empty hive and screening them in and setting in the cellar for three days. This was a sure cure, for the bees always starved to death in less than three days, the most of them dying inside of two days but after some experiments we found that starving for 24 hours always effected a cure, and we could also save the bees as they would hang quietly in a cluster like a swarm, and when given frames of foundation would go to work

frames of foundation would go to work with great energy.

The method of treatment finally evolved always gave good results, and we now use it entirely, and when serving in the capacity of County Bee Inspector, the writer always uses and recommends this plan, as it is simple and easy and reasonably sure.

We have discontinued putting the bees into the cellar as it is not necessary, but prefer to put the new hive on the old location and cover with a

the old location and cover with a shade-board. We also think it best to spread a paper or cloth in front of

empty hive to shake the bees on, driv-ing them in with a little smoke, after which the paper or cloth should be gathered up and burned.

A stick or empty frame with a small piece of burlap hung over it is a good thing for the bees to cluster on, and should be placed in the middle of the should be placed in the middle of the hive so that when you open up the hive next day you can slip in the frames of foundation on each side until the hive is nearly full. Then the empty frame with burlap and cluster may be shaken and the bees falling on the bottom of the hive will quickly run up on frames of foundation. The remaining frames can be slipped in the cover put on, and you can feel sure that you have done a

good job. We do not claim to have originated this method, as it seems to be in common practice with many Colorado beekeepers and perhaps elsewhere. So I suppose that they tried different plans until they found one adapted to their requirements as we did. Cedaredge, Colo.

Spring Management of Bees

BY E. F. ATWATER.

OT so very fong ago the writer wrote a million dollar article for a bee-publication. I was not for a bee-publication. I was not paid a million for it, you can bank on that. Worse, probably not one reader in one hundred really grasped its value. A little out of the beaten path, you know. But take my word for it, it was a million dollar article; can make and save that amount for the beekeepers. Save time, save work, build big colonies to make big crops.

The principle is simple—abundant stores at a distance from the brood, in spring breeding time. And those stores preferably near the entrance. In this mild climate, we prepare for this in the fall. We now produce mostly extracted honey, with an average of over 1000 colonies for some years past, and as is well known, colonies run for ex-

as is well known, colonies run for ex-tracted honey are often a little light in stores, so we leave two to five extra

combs of honey for each colony, at the last extracting. These combs of honey are in the extracting super next to the brood-nest, and the remainder of the space is filled with empty combs. As early in the fall as possible, we "reverse," that is to say, we put the super with the extra combs of honey, underneath the brood-nest, which brings the cluster in the upper hive where heat is best conserved. Of course the colony must have stores enough in the brood-nest so they will not starve in a cold spell of winter weather. All through the fall, the bees are carrying honey from the combs below up into honey from the combs below up into the brood-nest, resulting in a little later brood-rearing, some young bees for winter, and a more compact ar-rangement of the winter stores,

rangement of the winter stores,

But the big gain is in the spring.
Then the bees are constantly, when weather permits, carrying up stores, which encourages brood-rearing to the utmost. The bees will be far more active than in a small hive, where the stores are in compact form, all quite near the cluster, as with the stores so far from the cluster, the bees' instinct causes them to carry stores into or close to the brood-nest.

If there had been any combs the previous fall, which were new, and full of honey, too tender to extract, these are the very best to leave under the brood-

the very best to leave under the broodnest, as such combs will be emptied and the honey carried above before the honey in old combs will be touched.

honey in old combs will be touched.

Now, when spring comes and you are working your bees, take nearly all the honey not in combs containing brood, and put it in the hive-body below the brood-nest, filling the broodnest with first-class worker-combs.

Now leave them alone. Result is that the queen has almost unlimited room to lay in the upper body for weeks to come, and with the desire to surround the brood with honey from below.

This when carried up is unsealed and in the best possible condition to favor activity within the hive; the best of results are obtained in brood.rearof results are obtained in brood-rearing. Colonies so prepared should have a small entrance. No daily fussing and feeding, but results as good or better than with any other plan of spring management, unless weather conditions should be extraordinarily unfavorable. The queen will not be crowded for room to lay nearly so soon as when stores and brood are confined to one hive-body. In this connection the writer believes that the application of the principle of stores far from the brood is one reason why large hives so often prove superior to small hives, as in the large hive there is usually a goodly supply of honey, far removed from the actual brood-nest or cluster through a large part of the spring breeding season.

Briefly, put honey from the brood-nest or cluster actual experience of the spring breeding season.

Briefly, put honey from the brood-

Briefly, put honey from the broodnest, in early spring, into a hive-body under the brood-nest, filling up both bodies with good worker comb for easy, profitable, best spring breeding.

The writer has seen stronger colonies by this plan than any other, and speaks from an experience of 20 years with crops as large as 80,000 to 110,000 in a rather poor location.

Meridian, Idaho.

Meridian, Idaho.

The only objection we can see, in this climate, to the above suggestions is the possibility of some of the colo-



APIARY OF E. F. ATWATER IN IDAHO Notice that the first two rows face each other

nies thus treated becoming weak by winter or spring losses and being robbed, because of the exposed honey. Bees naturally place their brood between the entrance and their stores, and would hasten to remove honey placed in an exposed situation as practiced by Mr. Atwater.—Editor.]

Pollination of Plants

BY L. H. PAMMEL.

I was a boy on a Wisconsin farm in the late seventies, and shortly afterwards it was my pleasure to be a student in the University of Wisconsin, where I became acquainted with Dr. Wm. Trelease, the professor of botany, who had published some papers on the pollination of plants. It was during the spring of my sophomore year, when a number of students and I interested in botany took a course of lectures and laboratory work on this subject. This opened up to me a new world. I had more than once heard the name of Darwin and the great biological work he was doing mentioned in derision. To the average laymen he was known only for the work he had published on the origin of species and the descent of man. This was a new field to me. Here was a great naturalist who found "poetry" in flowers, who saw and described wonderful contrivances in plants to secure pollination. I became acquainted with the works of Hermann Mueller, Fritz Mueller, Hildebrand, Asa Gray, Sprengel and Sir John Lubbock and many other botanists who were students of flower fertilization as it was then called, later going by the name of pollination and now as flower ecology.

The subject was fascinating to me beyond measure. Not only did I become acquainted with some of our wild plants, but the insects important in pollination. For several years I studied and made observations on plants at various times. My interest in the subject has never ceased.

The sensitiveness of pollinating insects to color and to odor. It is believed commonly that odors and bright colors in flowers are of great importance as in-dicators (or "signals") to insects of the presence of nectar or pollen, and some observers even go so far as to suppose that these features have arisen through natural selection, the insects preferring the more fragrant and showy flowers, while others go unpollinated, so that the plants bearing them have no progeny. There is no evidence whatever for the selection theory of the prevalence of showiness and odor, and even the theory that insects are attracted by color and by fragrance rests too little on experiment and too much on the untenable assumption that theory must be true, because nobody knows any other role for the floral features. It is a tenable hypothesis that such features are without value to the flowers possessing them, and the "signal" theory deserves support only as it is proven experimentally.

It is not certain that insect attraction is the only possible role of colored corollas; it has been suggested that they may play an important part in the

chemistry of fruit maturation. Pigmented plastids may be important in food making, and pigmented cell sap may indicate the formation of useless by-products. It is to be noted that some wind-pollinated flowers are very showy, as in the larch and the red maple. Corollas also are of some importance as protective organs for the pollen and stigmas, especially in flowers whose corollas close at night and in stormy weather.

The possession of a keen sense of smell by pollinating insects is undoubt ed, inconspicuous fragrant flowers being visited much more than are showy ordorless flowers. The readiness with which flies are drawn to sources of nauseous odors is well known, and they frequent ill-smelling flowers in a similar fashion. Hawk moths detect at a distance of several meters the presence of fragrant but invisible nocturnal flowers, and bees have been seen to fly directly toward honey artificially hidden. Indeed, there are reasons for believing that many insects are able to detect odors that are inappreciable to human nostrils.

human nostrils.

The possession of a keen sense of color is much less certain. The only insects in which color perception has been definitely demonstrated are the honeybees. These highly organized insects often have been seen to visit gaudy but nectarless artificial flowers, and sometimes they attempt to get at showy natural flowers that are under glass. Frequently they visit colored, unopened buds and wilted flowers, the latter being at times approached, even after they have fallen to the ground. Apiarists rather generally believe that honeybees are able to perceive color differences, and hence they sometimes paint their hives in different colors, so as to aid the bees in recognizing their abode. To the extent that color is perceived by insects, it is a much more reliable "signal" than odor, since the latter often is affected by the wind or masked by other odors. Probably the characteristic forms of flowers serve as indices to nectar, especially in the case of flowers that are conspicuous by their shape or by their size; some observers think that form is even more important than color as an insect

Some investigators believe that honeybees not only perceive colors, but that they have marked color preferences. Experiments with honey on colored papers seem to show that bees tend to visit a particular color, even if others are more conveniently situated, and elaborate theories have been worked out on the assumption that bees dislike yellow and prefer blue, whence it seems to some observers an easy postulate that the day of yellow flowers is waning, and that of blue flowers is in the ascendant. Such conclusions certainly are unwarranted. The constancy of the honeybee to a a given color, such as blue, does not mean a preference for blue as such, but the association of nectar or pollen with that color. If a bee commences its activities on a red flower, or on honey placed on red paper, it is constant to red.

"In visiting flowers, bees are constant not only to color, but also to form, flying from flower to flower of the same species. This constancy to a given plant species for a certain period is of great advantage to the plant, since it means a minimum waste of pollen. is equally of advantage to the bees, since the nectar or pollen is all of the same quality, and since time and energy are saved in that exactly the same process is repeated in each flower that is The collapse of the color prefvisited. erence theory is well shown in those cases in which different individuals of given plant species have flowers of different colors. In such species bees soon learn the essential likeness of the differently colored flowers, going from one color to another indifferently. other words, bees learn to ignore dif-ferences in color that are unaccom-panied by differences in nectar or pollen. Even if bees prove to be the only insects with a color sense, other insects certainly are able to appreciate differences in tone, as they appear in a photographic print where whites and various colors come into sharp contrast with the darkness of the foliage. Similarly, the prevalent whiteness of nocturnal flowers makes them more con-spicuous than would any pigment color."

A survey of the whole subject may be obtained from the English translation of "Knuth Handbook of Flower Pollination," three volumes published by the Clarendon Press, Oxford, in 1906. This admirable treatise has a splendid summary of the more important work done along the lines of pollination up to the year 1906. Some work has, of course, been done since by entomologists and botanists. In this country John H. Lovell and Graenicher have made a number of important contributions. The flower ecologists have lately missed the contributions formerly made by Charles Robertson, of Carlinville, Ill. Mr. Robertson greatly enriched the American literature of the subject.

The following agents are important in the pollination of plants: I. Water (Hydrophilous), Fresh Water Eel grass; II. Wind (Anemophilous), corn, wheat, rye, pine, oak; III. Animal (Zoidiophilous), birds (Ornithopilous), trumpet creeper, snails (Malacophilous), duck weed, aroids, insects (Ernitomophilous), clover, plum, strawberry, etc. Large bee flowers (Melittophilous), sage, small bee flowers (Micromellittophilous), parsnip, goldenrod, dogwood, small fly flowers (Micromyiophilous), birthwort with a temporary prison, carrion fly flower (Sapromyiophilous) carrion flower beetle flowers (Cantharophilous), many compositæ, magnolia, butterfly flowers (Psychophilous), flowers pollinated by hawk moths and moths (Noctuids).

Loew classified flowers and the wild insects adapted to them into: 1. Allotropous. 2. Hemitropous. 3. Eutropous. The allotropous flowers are adapted to various kinds of insects with a short proboscis. The hemitropous flowers are visited by insects with medium proboscis. The Eutropous flowers are exclusively adapted to insects possessing a long proboscis. These flowers are therefore exclusive. These flowers are pollinated by the bumblebees, honeybees, and the Lepidoptera, e.g., butterflies and moths.

Plants are either (1) self-pollinated (Autogamous,) e. g., the closed flowers of violet or (2) cross-pollinated with

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the same species (Allogamous). Crosspollinated, e.g., with the same species; red clover (3) hybridization occurs between different species, offspring from the wild crab and cultivated apple. In post cases the flowers are open at the t me of maturity (Clasmogamy) (2) The towers are closed at the time of maturity of the stamens and pistils (Cleisogamy), late autumn flowers of the iolet.

Close pollination is prevented by the difference in time of the maturing of the stamens and pistils. When the tamens mature first, the term proterandrous is used—goldenrod, dandelion, geranium, etc. When the pistil matures first it is called proterogynous as in Luzula. In some plants as in European primrose and the little bluet, two sets of flowers are produced on the same plant, one with a short style and long stamens and another with a long style and short stamens. These flowers are known as dimorphic.

dimorphic.

In the trimorphic flowers, three s:ts of plants are produced—one with a short style; stamens of medium length and long stamens a second plant with short stamens and long stamens and the style of medium length and a third plant with a long style, short stamens and stamens of medium length—loose-trife is an illustration. Seed will not be strife is an illustration. Seed will not be produced unless the pollen comes from stamens corresponding to the length of

the style.

the style.

It would take a great deal of time to describe the special adaptations in flowers. A few special cases will serve our purpose, one of the most remarkable plants is Yucca, which is a native of western Iowa along the Missouri river. This plant is pollinated by the yucca moth (Pronuba yuccasella). The female moth has a specially constructed maxillary palp which can be rolled up so the yucca moth can gather the pollen and carry it to the flower. The female deposits its eggs in the pistil and then pushes the pollen into the funnel-shaped stigma. After a few days the eggs hatch and feed on the developing seed, each larva consuming about 20. Then the larva bores its way out of the pistil and pupates in the ground; the next season when the yucca is in bloom the moths are fully developed. The remarkable thing about the yucca is that seeds will not be produced without the yucca moth and the perpetuation of the moth is dependent on the yucca.

We have another class of flowers. yucca.

We have another class of flowers known as pitfall flowers, represented by the birthwort (Aristalochia). The flowers are proterogynous; that is the pistils mature before the stamens. The flowers, as Muller says, appear to bloom but actually do not, neither the anthers nor the pistils are mature. The insects enter the flower, the hairs point down obliquely, the insect finds it easy to enter. The fly may be in the flower for six days. In the meantime the stigmas mature and the fly leaves some of the pollen on the stigma from an-other flower; the anthers mature later; when these have shed their pollen the hairs relax and the insect goes out and to another flower. A somewhat similar trap occurs in some of the aroids. The insects, especially bees, are trapped by the pollen or pollen masses of the common milkeed (Asclepias syriaca), often so abundant on honeybees that they

strong and pleasant odors as well as the large amount of nectar in the nectaries attracts many insects to the flowers. The common stapelia of the same family, sometimes cultivated in greenhouses, attracts flies because of the carrion-like odor. The hair and color of the flowers resemble the flesh of some wild animals where the plants grow, and for this reason blow flies deposit their living young in the

The moccasin flower also traps insects. The moccasin nower also traps insects. The so-called slippers or labellum are provided with a revolute margin. The odor which is pleasant attracts the insect who finds it an easy matter to go into the flower by the opening. It feeds on the juicy hairs, but it cannot get out because the margin is revolute. The only way for it to get out is by means of the small openings on each side at the base of the flower. In doing so it comes in contact with the stigma where it leaves some of the pollen from an-other flower and carries away some of

Quite a number of flowers are sensitive like the thistle, barberry, bachelor's button, laurel, etc. In the case of the barberry, which is much frequented by honeybees, when mature and the honeybee touches the anther, the stamen moves towards the insect in the flower. The Iowa thistle and other species are also sensitive. When the insects try to get the nectar in the flower the stamens move and force the flower, the stamens move and force the pollen out. Try the experiment some-time when you have some of the thistle heads at hand by touching them with a pencil, and you will find that a gentle wave will pass over the heads. You can see the sensitiveness in the stamen of the moss rose, simply touching them will cause the stamens to move forward.

Ames, Iowa.

Edouard Bertrand

BIOGRAPHY

When announcing, in our March number, the death of the old veteran beekeeper, Edouard Bertrand, we promised our readers a biography of this noted man. We thought best to delay this so it might appear simultaneously with the centenary of Charles Dadant, those two men having been very closely connected on the apiarian stage, although never having met each other.

The biography of Bertrand given by Thomas Wm. Cowan, in the British Bee Journal for Feb. 8, is so well written that we quote from it:

"Ed. Bertrand was born on May 16, 1832, in Geneva, where he was educated, and like many other Swiss he left his native home to make a living at the age of 20, coming to England, where he entered the banking house of Messrs. Hambro, in London. After three years he accepted a position with a stockbroker in Paris, and remained in business until 1873, after having gone through the anxiety of the siege of Paris by the Prussians. This, and the subsequent insurrection of the Commune in 1871, during a portion of which time he had the responsibility of guarding large funds committed to his guarding large funds committed to his

care, told seriously upon his health, from which he never entirely recovered, and, not having any children, he decided to retire from business and return to his native land. Here he purchased a property at Nyon, on the shores of Lake Leman, in view of Mont Blanc, where he could devote himself to his favorite pursuits of horticulture. to his favorite pursuits of horticulture and arboriculture.

"It was not long before he became possessed of two skeps of bees with straw caps, such as are used by the villagers, which a friend of his had offered to him, and with these he commenced beekeeping. Having no other idea about bees than those gathered from the work of his compatient." from the work of his compatriot, F. Huber, in his "Nouvelles Observations," he found the knowledge acquired not sufficient for practical beekeeping. The first two or three years of his novitiate were passed in trials and failures without ever harvesting a single pound of honey. He tried, one after the other, hives with supers such as the Varembey, Ribeaucourt, Carey, Christ, etc.; then hives with small



MRS. EDOUARD BERTRAND

frames like the Berlepsch, Bauverd Jarrie, etc., always with the same unsatisfactory results. The honey flow in the neighborhood of Nyon is of short duration, and the district is not favorable for beekeeping, as there was only half the pasture there would be away from the lake. It was, therefore, important more than in other places to have strong colonies at the right time, an impossibility with the small hives he was using. Coming across the works of G. de Layens, "Elevage des Abeilles," and of Dadant "Petit Cours d'Apiculture," the methods there described were a revelation to him, and in 1877, for the first time, he obtained a good harvest of honey from a Layens frames like the Berlepsch, Bauverd good harvest of honey from a Layens hive which he had placed in an apiary he had started in the mountains at Gryon on a small family estate. The following year he changed his hives, partly for the Layens and partly for Dadant's, and established a third apiary at Bex.

at Bex.
"In 1880 he started another apiary at Allevays in the Jura. Here he put up an equal number of Layens and Dadant hives for comparison. He was teach-

ing apiculture gratuitously, and had a pupil as assistant at this apiary, which he later gave into his charge. This apiary always gave good results in spite of foulbrood, which decimated it, but which, however, was stamped out. Not only its first cost of 2500 francs (for hives, building for lodging, workshop and fences) was quickly returned by the produce, but every year a handsome profit was derived and divided equally between M. Bertrand and his assistant. Later he gave up this apiary to his assistant and also discarded the Layens hive in his home apiary, retaining the Dadant as the most suitable for profitable beekeeping.

"In 1876, when the Société Romande d'Apiculture was started, Mr. Bertrand was elected secretary, a post which he occupied for several years. On several occasions he was elected president of the society, a post which could only be held by the same person for two years consecutively. He was also treasurer and librarian of the society for many years.

"In 1879, the society having recognized the advisability of having an organ which would place its members in communication with each other and inform them of the advances made in beekeeping, M. Bertrand offered to edit the journal on condition that he was the sole manager, and undertook to bear all the costs. Members were supplied with the journal at the reduced rate of three francs, while the ordinary subscription was four francs. At this time the leading French journal was strenuously opposed to the new methods, and M. Bertrand had to submit to much unfavorable criticism and abuse from an Italian journal conducted by Giotto Ulivi and several of his partisans in France. However, so well was M. Bertrand's journal received that it was evident it filled a void, and at the end of two years the Bulletin d'Apiculture pour la Suisse Romande had suffi-

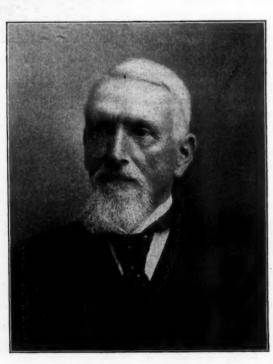
cient subscribers to pay its cost of production, and these so rapidly increased abroad, especially in France, that it was considered advisable to change its title to Revue Internationale d'Apiculture. This he carried on with the help of Madame Bertrand—who was as great an enthusiast as he was—and M. Crepieux-Jamin until 1903, when owing to failing health the journal was given up.

There was no doubt that this highclass journal was the most practical and best in the French language, as it was the only one at that time which treated seriously of modern methods, and it was no wonder that it was eagerly sought after by advanced beekeepers. It was known that M. Bertrand was not only a practical but a successful beekeeper, and his advice could always be relied upon. Having successfully fought foulbrood, he was able to give such advice as has been the means of curing many diseased colonies. Being acquainted with several languages, M. Bertrand kept his readers informed of the progress being made in England, America, Italy and other countries. It was with this object in view that the "British Beekeepers' Guide Book," "The Honey Bee," and "Wax Craft," by T. W. Cowan, were translated by him into French, as was also "Foulbrood of Bees," by F. C. Harrison.

M. Bertrand also published several practical works, such as "Routine et Méthodes Modernes, premières notions d'Apiculture," in 1882; "Description des meilleures Ruches," "Conseils et Notions à l'usage des Commençants," and in 1883 "Calendrier de l'Apiculteur." The three last were later combined in one volume, entitled "Conduite du Rucher," which, after several revisions, attained its 11th edition in 1915. This is still considered the



THE BERTRAND CHALET



THE LATE EDOUARD BERTRAND

standard book in Switzerland and other countries, having been translated into seven languages.

seven languages.

In 1891 and 1897 he published "Lettres inédites de Francois Huber," in 1891 "La Ruche Dadant modifiée," and in 1899 "La loque et son traitement." He also translated from the Italian Rauschenfels' La fausse-teigne "in 1890. In 1891 the translation of Dadant's "Langstroth" was published under his supervision.

During the 25 years in which M. Bertrand published the Revue Internationale at Apiculture he practically revolutionized beekeeping in Switzerland and France. Old-fashioned skeps almost entirely disappeared, and rational methods were adopted. His activities did not rest there, for he gave courses of instruction from 1884 to 1887 at his own residence, where the theory and practice of rational beekeeping were imparted, and he formed a band of disciples who spread the new methods throughout the country. We can ourselves, with a pretty good acquaintance with the country, testify to the change that has taken place and the progress that has been made in beekeeping during M. Bertrand's activity. Eminent scientists and practical beekeepers of the first rank met at the hospitable residence in Nyon, and were welcomed by Madame Bertrand, who was such a help-

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m. te to her husband, and always did her best to make their visits pleasant. It is, therefore, not surprising that on M Bertrand attaining on May 16, 1912, hi: 80th birthday, the day was celebrated in a manner befitting the occasion.

M. Bertrand was an honorary member of numerous societies in Europe at d America. He was frequently asked to judge at exhibitions, and at the Swiss National Exhibition held in Zerich in 1883 and other places, when we had the privilege of being members of the same juries, it was with particular satisfaction that we noticed the careful attention he gave to details and the justice with which he made his awards. The acquaintance which we made with M. Bertrand 33 years ago had grown into an intimate friendship, which had lasted to the day of his death. Together, frequently accompanied by Madame Bertrand, we have made many a mountain excursion, and many apiaries have we visited, and have always found him a charming companion, fond of nature, and taking an interest in the rich flora of the mountains.

Our correspondence was frequent and regular, and just recently we received a letter from him, dated Dec. 20, when he wrote in good spirits, and it was a severe shock and grief to hear of his having passed away so soon afterwards. He was taken ill towards the end of the year, and succumbed to affection of the heart and old age, passing away peacefully in his sleep on Jan. 16. Thus we mourn a good and eminent beekeeper, and we are sure that beekeepers in this country will join with those on the Continent in their sympathy with Madame Bertrand in her bereavement. A devoted wife, she encouraged her husband in his work, and shared his labors on the Journal and in publishing his books.

and shared his labors on the Journal and in publishing his books.
"Wax Craft" was translated into French by Madame Bertrand, a work of considerable difficulty owing to its technicality, but it was satisfactorily accomplished. She also translated articles from English, American and Italian papers, and in other ways shared his literary activities. It will be some consolation for her to know of the great respect entertained for her hus-

band, that the seed he had sown had germinated well and borne good fruit, and to feel that he was the means of doing a great and valuable work, not only for his country, but also for European beekeeping, and that his name will be handed down to posterity as one of the eminent bee-men of the 19th century.

The War Conference

BY AN ONLOOKER.

In future years, the recorder of beekeeping history may mark April 23, 1917, as the beginning of a new epoch for the industry. On that day a little band of earnest men gathered in Washington in prompt and patriotic response to a call sent out by the Bureau of Entomology. Three days before, telegrams had flown over the country summoning these men to a war conference, and to those farther West, it meant an immediate dropping of work, at considerable sacrifice, in order to be present on that memorable Monday morning.

Monday morning.

The conference was held in the big, white suburban house, known in the neighborhood as the "bee office," whose only sign of officialdom is the modest Department of Agriculture tablet on the front, and the American flag flying from an upstairs window. The shade trees half hiding the wide porch, the sweeping grass dotted with white hives, the quiet house itself, all seem symbolic of peace and happy family life, but upon opening the front door, one enters immediately a different atmosphere. The wide hall is lined with filing cases, and one corner that day was piled high with envelopes already addressed to the beekeepers of the country. During the day, two colored porters shuffied in and out, carrying reams upon reams of paper. In the big office overlooking the apiary, sat the war conference, presided over by the President of the National Beekeepers' Association, most of the discussion being led by Dr. E. F. Phillips, whose prescient mind had been preparing for weeks for the emergency now upon us. Every one of the faces was grave and earnest; the twelve men there had

come with one idea—service. At one table sat Prof. Jager from Minnesota, his face lit with enthusiasm as he talked of the possibilities of bee-culture to Mr. Cale, Maryland's representative to the conference. Near him sat Dr. Gates of Massachusetts, whose intellectual attitude of mind was offset by the practical business acumen of Mr. Bacon from Wisconsin. Here was Mr. E. R. Root, eager to enlist the great machinery of the Root Company's plant into the country's service, here sat Dr. Jones, of the Bureau of Crop Estimates, anxious to help; beside him, Dr. Nelson and Mr. Sturtevant, both scientific investigators of the Bureau of Entomology, ready to put microscopes aside and do their bit. Mr. Demuth and Mr. Sechrist, also of the Bureau of Entomology, were prepared to add their valuable practical knowledge to the wide scope

of the discussion.

From early morning the conference wrestled with the problem, not only of making the slogan "A hundred million pounds of honey extra" come, true, but also of getting supplies and honey containers to the men who will produce that honey, and of marketing the hundred million pounds after it is produced. There was a sudden cessation in the work when a swarm issued from one of the winter cases just outside the windows! Even war must wait—nothing is more compelling than a swarm! Instantly these dignified men became simply enthusiastic beekeepers who must see where the swarm would light. Their only interest in the world now seemed to be the tiny whirling specks against the sky, and the only conversation was on methods of wintering which could produce colonies strong enough to swarm so early. Mr. Demuth with swarm-box and veil gave a demonstration of his ability to climb a ladder. amid encouragement and jeers from the rest, and the swarm was safely hived. There was only one calamity—Mr. Cale was stung on the tip of the nose! The excitement over, the war conference went back to work indoors, out of the warm sunshine, like

school-boys after a recess.

In the meantime, anxious wives in the kitchen—now Mr. Sturtevant's laboratory—wished they would "hurry and get through talking before the coffee would get cold." At last Mr. Sturtevant came out, ostensibly to say that the conference had adjourned for lunch, but in reality to see that the five women in his precious laboratory were not using his utensils or breaking his test-

After lunch, the men fell upon the war program once more with renewed vigor, but the afternoon discussion was broken by a visit from Dr. L. O. Howard, Chief of the Bureau of Entomology, who came from the city to welcome the visitors, and by a short talk by Mr. J. W. Fisher of the Office of Markets, who outlined the proposed work of that office in marketing honey. Mr. W. D. Bentley of the Office of Extension Work in the South, also came to tell how his office would assist beekeeping, and to urge that the regular extension work be utilized in spreading the news to beekeepers more rapidly.

By dinner time, without having begun

By dinner time, without having begun to exhaust the topic, the conference had a program well mapped out for the mobilization of the beekeeping industry, and recommendations were drawn



THE BERTRAND SUMMER HOME

up in a formal letter to the beekeepers of the United States. Tired but satisfied with the day's work, the men piled three deep into the two automobiles at the door, and were taken to Dr. Phil-

lips' home for dinner.

Did you ever see and hear ten or twelve bee-men together at a meal? They ate honey of course, beautiful little individual packages of it, the gift of the producer, and they weightily considered its flavor with as much gravity as they had used on the war program. Snatches of their conversaoverheard ranged from liberty tion and independence to garden crops and soda water! Here Mr. Demuth was describing the "true democracy" found in the beehive, "where noone is boss—absolutely noone"—and wistfully he wished that men might learn winder. wished that men might learn wisdom from the bee. At one end of the table Prof. Jager was talking of Arlington Cemetery with its rows of unknown

"Ah! Liberty, Liberty!" he said sadly, "What a price to pay! And yet —we are willing to pay anything—anything for it! We must help the little countries to their freedom!" He spoke feelingly for, a Southern Slav himself, he knows well the iron heel of oppres-

sion.

At another table, Mr. Bacon was discussing the psychology of faces, and the necessity for salesmen to be able to read faces.

Talking to some men, who look you coldly in the eye without a change of expression, is like addressing a stone wall-

"Yes, I eat a half pound of honey every day," says Dr. Jones from an-other quarter, "and everybody would

be the better for doing likewise.

"I have a few new pieces of pottery-fine specimens—that I picked up in and Dr. Gates is off on his hobby;



DR. A C. BAXTER, OF ILLINOIS

while Mr. Root dilates upon the charm of life in winter in Florida.

So the war conference relaxed and enjoyed itself until 7:00 o'clock, when

the relentless and indomitable Dr. Phillips led them back to the office to work until late that night.

The next day saw them scattered in committees of two or three, determined to achieve concrete results. One group spent the day at the office of the Secretary of Agriculture, asking for in-creased funds for the Bureau of Entomology for the war propaganda. Another waited upon the National Defence Council with regard to the transportation of containers, while still another went to the Post-office to see about the shipping of bees by mail. That night the groups dissolved, and most of the men left Washington.

It may seem like a little thing-this gathering of a dozen men, but it was of no small moment to the beekeepers of the country. Those few but determined minds have put into motion an impulse that will go on with increasing power long after the war is over, so that api-culture may rapidly take her rightful place among the agricultural industries of the United States. The time may not be far distant when honey will be on every table, and more beekeepers will count their hives by thousands!

Honey—Compared With Other Sweets

BY A. C. BAXTER, M. D.

T is a fault of man to praise highly anything in which he is interested, the beekeeper being no exception to the rule. He is fond of praising his honey as a food and a "cure all" for the diseases to which the human body is heir. He does not praise the honey with the idea to mislead or deceive, but from lack of knowledge of what honey really is. When he tells of the medical value of honey he bases his opinion on what he really thinks has taken place, as he has used it in various ailments, and being still able to tell the tale, he believes honey the agent that restored his health. When the facts of the matter are carefully looked into it is discovered that probably he would have been well in a few days without any treatment.

Another common fault is to explain to the housewife the food value of honey and compare its value with some common article of diet. For example: that seven ounces of honey is equal to a quart of milk. True it is, but the good housewife doesn't believe it, and at any rate you couldn't expect her to replace milk with honey. On the other hand if she learns that strawberries or peaches have a better flavor with honey or that bread and cakes made with honey keep better, not drying out as when made with sugar, she is at once interested and will get some honey to

see whether the story is true.

It is as an article of diet that honey must be known, if it is ever expected

to become more than a luxury or a sweet to please the children, an article that surpasses all other sugars in the diet of mankind. To understand this it might be well to explain what honey is and the digestion of the various sugars. The chemist tells us that honey contains approximately 40 percent levulose, 33 percent dextrose, and 1½ percent saccharose, the rest being moisture, a small amount of mineral, coloring matter and dextrine (vegetable

gum). This percentage of sugar varies with the nature of the nectar and age of the honey. In old and well ripened honey saccharose (cane sugar) is converted by a ferment present in all honeys into levulose and dextrose.

Honey, therefore, consists of two principal sugars, levulose (fructose) and dextrose (grape sugar). These sugars derive their names from their action on a ray of polarized light, their chemical formula being the same. Levulose in solution turns the ray of light to the left, it being levorotatory or as its name indicates, is a "left handed" sugar. Dextrose, on the other hand, turns the ray of light to the right, being dextrorotatory, and is therefore a "right handed" sugar. The predominating sugar in honey is levulose, it being the sugar that gives honey its high food value. All sugars are digested and assimilated in the small intestine. Saccharose (cane sugar) is split by an intestinal ferment, in equal parts of levulose and dextrose, and is then absorbed, while honey already containing these sugars does not have to be acted upon by a ferment, and can be assimilated by any one, even if the ferments are absent. Levulose is very readily absorbed in the intestinal tract, while dextrose without the presence of levulose is very slowly absorbed. In some manner the "left handed" sugar in its passage through the intestinal walls, pulls along the "right handed" sugar.

The glucose of commerce, known in America as corn syrup, must be regarded as a mixture of dextrose, mal-tose and dextrine, and is prepared by hydrolysing starch, by boiling with a dilute mineral acid. After the acid is removed and the solution clarified, the liquid is concentrated in vacuum pans to the density of syrup. A small quantity of solution of sodium bisulphite is added to bleach it to prevent fermentation and to inhibit browning. The maltose of this mixture must be acted upon by a ferment before it can be used by the body, and then it forms more dextrose. So it is easy to see that an individual who uses this syrup is receiving very little food value for his money. The only thing accomhis money. The only thing accom-plished is the softening of a little dry bread. So with all of man's methods, Nature's sugar—honey—still continues to be the best sweet for man. Springfield, Ill.

The Work of the Bee Division of the Dominion Experimental Farms

BY F. W. L. SLADEN, APIARIST, DOMINION EXPERIMENTAL FARMS

N organizing the work of the Bee Division of the Dominion Experimental Farms, my endeavor has been to develop work of practical utility to beekeepers on the lines that have been laid down and successfully fol-lowed by the other divisions of the Experimental Farms' service. The Experimental Farms' system conducts researches and experiments to test the value, for all purposes, of all kinds of stock and plants and their adaptability to the varied climatic and other conditions which prevail in the several prov-inces. The investigations of the parliune

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mentary committee upon whose recom-mendation the Experimental Farms were established appeared to demonstrate that defective and wasteful farming was the cause of the agricultural depression prevalent at that time, and that there was need of the discovery and application of more scientific methods.

For conducting the necessary experiments, there are, in addition to the Central Experimental Farm at Ottawa, some 20 branch farms and stations scattered throughout the Dominion. At five of these bees were kept when I At five of these bees were kept when I was appointed four years ago, and one of my first cares was to see that these apiaries were as well managed as possible, and to find out what practical information of value to local beekeepers could be obtained from them. The task had certain difficulties. The apiaries were not large enough to employ a man's whole time, and often we have had to train others. At the present time bees are being kept on 15 of the Dominion Experimental Farms including Ottawa, and reports made out three times a year of the progress of the api-aries are filed. In the summer report we have, amongst other things, the daily gain and loss of a hive on scales with the meteorological conditions and honey plants in flower at the time. This year a weekly report during the summer has been started with its prin-cipal object the control of swarming cipal object the control of swarming.

The work has demonstrated that it takes at least two years for the average man to become even a fair beekeeper. It has also shown that successful beekeeping, that is, beekeeping resulting in large and profitable yields of honey, depends on three main conditions:

(1) The presence in abundance of nectar - secreting flowers, (2) favorable weather for the development of the plants and the secretion and ingathering of the nectar and (3) good management of the bees. The first two—honey plants and weather—are the local conditions, and it depends upon them, in a word upon *locality*, whether a good beekeeper will get a yearly average of, say, 50 pounds of extracted honey or 100 pounds. This is a very important consideration to the professional bee-

It would, of course, be impossible to investigate in detail the whole subject of productive beekeeping thus out-lined; it would also be unnecessary. Many bee problems common to all countries are being ably investigated by trained men in the United States and elsewhere, and I have felt it my duty to study first those that are essentially Canadian. Occupying as our country does almost the whole of the northern part of North America, many conditions are found in the Dominion that are not dealt with in any text-book on beekeeping. Chief among these conditions are the honey plants found in different parts of Canada and their value particularly in relation to the weather, and two problems in bee

management, wintering and the control of swarming.

I selected these two problems in management because they are the cause of much trouble and loss in Canada, and are the most difficult to deal with. Sixty percent loss of bees (not colonies) in winter is not rare, and of swarming it may be said that this fac-tor more than any other limits the

number of colonies a man can keep. Besides, both problems are especially acute and present special phases in Canada. Our winters are cold and long, and the rapid change from severe winter to our long and glorious sum-mer days brings with it an excessive

tendency to swarm unknown in the tropics where every day is much alike. Not much can be said about our ex-periments in wintering and swarm control because they have only been re-cently begun. In regard to wintering, the losses in apiaries around Ottawa during the past two years have been quite heavy, and the cause ascertained to be unwholesome and granulated stores, aggravated in many cellars by excessive dryness, in many cases causing a heavy consumption of stores, 20 to 25 pounds per colony, and rapid mortality. This investigation has drawn attention to the fact that our winters are very dry, and that in a dry cellar the stores will gradually dry up and the bees may suffer severely for want of water. It has also shown that where stores are likely to prove unto be unwholesome and granulated where stores are likely to prove un-wholesome, allowance must be made for a heavy consumption amounting possibly to more than double the usual consumption of wholesome stores. In order to discover the source or sources of the unwholesome honey, colonies are being wintered on stores gathered at three different seasons; first period, June 26th to July 18th, the stores in this case consisting of clover honey; second period, July 24th to Aug. 8th, stores consisting largely of sweet clover honey; third period, Aug. 14th to Sept. 11th, honey from goldenrod, aster, buckwheat, sweet clover and other sources. other sources.

To study the effect of varying degrees of humidity on bees wintered on grees of humidity on bees wintered on these different stores, some of the colonies will be wintered in a dry cellar and others in a moist one in our new apicultural building, which was occupied on Feb. 11th last. Following a method adopted with success at the end of last winter, each colony is being supplied with an empty shallow chamber between the brood-chamber and floor and paper trave are to be and floor, and paper trays are to be slipped in over the floor and removed at fixed intervals to estimate the rate of mortality of the bees. By making daily observations on the rate of mor-tality last winter in this way, it was definitely ascertained that the supplying of water to the bees in the cellar reduced the mortality.

Some colonies have been wintered outside during the last four winters. died in winter, and the living colonies have come out stronger and, protected by the packing, have built up faster in spring than the colonies wintered in the cellar.

The problem of the control of swarming can be attacked in two ways, by endeavoring to breed a non-swarming bee and by manipulation. The former looks attractive, but needs close atten-tion, requiring more than I feel justi-fied in spending on it at present. Pre-liminary experiments in the latter, manipulation method, were undertaken in the apiary at Ottawa this year with the result that the expanding of the brood-nest so as to reduce the congestion of young bees and give the queen more room to lay was not found to be so efficacious in preventing the building

of queen-cells in preparation for swarming as was hoped, although it had a certain effect. Cutting out queen-cells every week is apparently necessary under the control of the control of the control of the certain the control of the certain the ce der the conditions we encountered this year at Ottawa. Even this measure, however, had its efficiency much reduced by two things, the frequent building of queen-cells from worker larvæ and the frequent issue of the swarm before the gueen cells made to the swarm before the gueen cells and the gueen cells are gueen cells and the gueen cells are gueen cells and the gueen cells are gueen cells and the gueen cells are gueen cells and the gueen cells and the gueen cells and the gueen cells and the gueen cells are gueen cells and the gueen cells and the gueen cells are gueen cells and gueen cells are gueen cells and gueen cells swarm before the queen-cells were capped over. A strong desire to swarm had developed in the majority of the colonies in the apiary, and this desire spread to nearly all the other colonies and continued while favorable conditions lasted, rendering the usual methods of preventing swarming of methods of preventing swarming of little use. These were conditions in which the treatment of making artificial swarms or hiving natural swarms

on the parent stands was indicated.
But the principal subject upon which I wish to speak today is locality, in particular the quantity and quality of the crops of honey obtainable in different parts of Canada and the principal factors that control the yield, honey plants and weather. and weather.

Ottawa, Ont.

[To be continued.]

Some Bee History

BY H. B. PARKS, BIOLOGIST.

URING the period in which the United States was recovering from that struggle that gave to her independence, a few adventurous Russians under the leadership of Count Baranoff, took possession of Alaska and founded colonies to the far Northwest. The Russians in America became the source of wealth for the home land, the exploit ground for the adventurer, and a safe harbor for the exile. With the colonies came the priests and monks of the Greek church. As these came from the barren steppes As these came from the barren steppes of Siberia, where every available source of food must be utilized, they were well fitted to become the pioneer teachers

These pious fathers brought with them from the fields of Kazan a double-walled straw skep and its hord of toilthe heart of Seward's Ice Berg, the honeybee started to work in 1809, and today in Sitka and other old Russian towns in Alaska are the sturdy descend-

ants of this hive. The flower season of southeastern Alaska is of good length, and because of the abundant rainfall the flowers are mostly insect pollinated, so that the bee has the nectar supply. But it rains, it rains and then pours, and the brave little worker dodges the drops and gets his store of sweets. The flowers are mostly pendulous and the nectar secretion great. The native bees are covered with a rough hairy coat and pay little attention to the rain. It is a peculiar sight to the beekeeper from the States, where the bees are inactive during showers, to see these Alaskans under the cover of the leaves gathering their leads and then during a lull in the loads and then during a lull in the storm go to the hive. Because of the damp and rainfall most of the hives are located on shelves under broad eaves or in open garrets.

Early the priests imported a clover resembling white clover for a bee pas-

So important did the Russians consider the bees that when Count Etholin, in 1819, reported on the condition of the colony to St. Petersburg, he mentioned that in the course, a study of the colonial school apiculture was given a prominent place.

The Russians in seeking an outlet for their produce, skirted the west coast of America as far south as California, where they traded fur, bells, iron work and oil for wheat. It is a notable fact that notwithstanding the stories of the keepers of the old Spanish Missions as to the origin of their wonderful chimes, the most of the bells bear the double headed eagle of the Russian-American Fur Company, and were cast at Sitka.

In order to carry on this trade, Fort Ross was established in 1811 by the Russians about 200 miles north of San Francisco. Here bees were brought from Sitka, so that in California today may be found the descendants of bees from Russia, Mexico, and Spain, to-gether with the modern importations.

It is a fact of interest that the Russians sold their domain in California in 1841 to Thomas A. Sutter. He gave a promissory note for \$30,000 for the land claimed, the town, the fort, the right to rule and acknowledgement of his government, for he intended to rule as a dictator. Sutter today is known only as the discoverer of gold, and the Russian-American Fur Company still holds the unpaid note.

Albany, Mo.

Guide Marks for Returning

BY FRANK F. ROJINA.

N the article on "House Apiaries" in the March number, Mr. Pellett does not mention the most serious defect on all bee houses mentioned therein, the lack of proper identifica-tion marks to prevent mixing the bees

and loss of queens.
In Carniola, bees have been kept in our family (Roj-ina in the Slavic lan-guage means "Swarm-man") in house apiaries for several hundred years, and we have gone through all these experi-

We solve this difficulty by carving pictures in green, red, blue, yellow, etc. Some of these fronts are quite artistic, representing scriptural and national folklore legends. I often watched re-turning bees, at times marking them on the thorax with paint and found that they always landed on their return home on the identical spot which impressed itself on them on their first bee-play flight. This mark was the hand, or the head of some carved figure or a spot of paint, sometimes several inches away from the entrance.

On coming home the bee always landed on this spot, whence it quickly marched down to the entrance. In American bee houses we fail to provide such guiding marks for returning bees, hence our losses.

In Carniola we are never bothered with the mixing of bees or loss of

University Farm, St. Paul, Minn.

[If our readers will turn to the front page of the cover of this number, they will notice that the hives in the Kanar-

off apiary are painted in the manner described by our youthful correspondent, Mr. Rojina. So this method of marking the hive front with distinguishing designs is followed in Caucasus as well as in Carniola, and probably in many places where bee owners are supposed to know very little about the requirements of beekeeping. There is some doubt in our mind as to whether these marks are sufficient to prevent entirely the mixing of bees in hives so closely located. But it must certainly help.

We offer these suggestions to owners of house-apiaries.]

No. 5.—Seventy Years of Beekeeping

THE later improvements and discoveries in beekeeping have been less marked than those mentioned previously. Many things which we think we discover are but repetitions of former deeds. It is true that, within the past few years, foulbrood has been better described and better treated. Cheshire and Cheyne, both English, first discovered a bacillus which they named "bacillus alvei" (1885). But our own Dr. White, of Washington, D. C., determined a more precise discovery in "bacillus larvae (1903), with which he could reproduce what is now called "American foulbrood." Later he has described another form which he called "bacillus pluton," which he believes to be the cause of "European foul-brood." But if we look back nearly 50 years, we find, in the third volume of the American Bee Journal, February, 1868, a translation from the Bienenzeitung, in which Dzierzon describes the symptoms of these diseases very accurately, though he had no knowledge of the bacilli. His methods of cure are also very similar to those in present use. But even Dzierzon was not the first to use "fasting" to free the bees of the germs of the so-called American foulbrood. In 1761, Schirach used the starvation method. We have already mentioned this in our May issue.

We may, however, take pride in the regulations which are becoming annually more universal, brought about by inspection laws and quarantine. Within a few years, brood diseases will be well under control, not only in the United States but throughout the civilized world. In this country and Canada, four men may be credited with the early work in this line. They are D. A. Jones and Wm. Mc-Evoy, already mentioned, both Canadians; N. E. France, of Wisconsin, whose father, Edwin France, was a noted beekeeper as early as 1879, and E. W. Alexander, of New York State. A few months ago Dr. White again distinguished himself by a descrip-tion of a minor disease of similar na-ture under the name of "sacbrood."

Diseases of the adult bee, May disease, paralysis, Isle-of-Wight disease, still belong to the unknown, as

far as cure and exact knowledge of causes are concerned.

However, at a comparatively modern date, 1909, Dr. Zander, of Bavaria, discovered a parasite of the stomach of the bee, which is suspected of being the cause of some of these diseases. It is also called "microspori-diosis." As early as 1857 and 1858, spores which were probably the germs of Nosema were observed by Donhoff, Leuckart and Higgins (See Graham-Smith's report on Isle-of-Wight disease). The exact diagnosis and cure of the adult bee diseases belong to "tomorrow."

There remains for us only to review briefly the literature of the modern bee world. This must neces-sarily cover only the United States, for if we were to try and give a list of the modern foreign and Canadian works and journals on apiarian science of the past 40 years, the enumeration would become tedious. We will make an exception only by mentioning the most important:

Cowan, Cheshire, Bertrand, DeLayens, all but the last published since 1883. Cowan and Bertrand have had the honor of seven or eight translations each, in different languages.

In our own country, the revision of the "Hive and Honey Bee" was entrusted by Mr. Langstroth to Charles Dadant and the writer, Mr. Lang-stroth's health being too poor for a revision of this "classic." The work revision of this "classic." The work of revision, begun in 1885, was completed only in 1888. Translations were made into French, Russian and Spanish. Meanwhile, the work of A. I. Root, the A B C of Bee Culture, has been enlarged and entitled "The A B C and X Y Z." It is the largest book and has had more editions than any other book on bees ever published. It is a very complete encyclopedia and really not an A B C, which would indicate an elementary work. It has also been translated into French, Spanish and German.

In 1886 Dr. C. C. Miller published "A Year Among the Bees,", later republished (1902) with additions as Forty Years Among the Bees," recently (1911) as "Fifty Years Among the Bees." Its experience is indicated by its title. Few men have had

as thorough practice as Dr. Miller. Quinby's "New Bee Keeping," Al-ley's "Handy Book," Cook's "Manual" have already been mentioned, as well as Hutchinson's "Advanced Bee Cul-ture," and Doolittle's "Scientific ture," and D Queen-Rearing."

We could not here mention all the pamphlets, State Reports and Bulletins of the Department of Agriculture, treating of bees, published since 1883, one of the early ones of which was Benton's "The Honey-Bee," 1899. We cannot fail to name, however, some of the different studies by E. F. Phillips, in charge of bee culture at the Bureau of Entomology at Washington, "The Treatment of Bee Diseases," "The Temperature of the Honey Cluster in Winter," by himself and Geo. Demuth; "Bees," "Outdoor Wintering," also some of the works of his associates, "White's Bacteria of the Apiary," "Snograss' Anatomy ne

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oi the Honey Bee," "Nelson's Embry-ology," "McIndoo's Olfactory Orology," "McIndoo's Olfactory Organs"; also Phillips' independent book, "Beekeeping."

Will the list be too long if we add several splendid modern works? "How to Keep Bees," by Anna Botsford Comstock; "The Honey Makers," a delightful book of traditions on bees by Margaret W. Morley; Alexander's Writings in pamphlet form; Townsend's "Bee Book," and recently "Productive Beekeeping" by form; Townsend's "Bee Book," and recently "Productive Beekeeping," by F. C. Pellett.

Several works have also come to us from Europe, besides Cheshire and Cowan; four of the leading ones being: Maeterlink's "Life of the Bee," "Simmin's "Modern Bee Farm," Digges' "Practical Guide," and Edwards' Lore of the Honey Bee."

But the best evidence of the impetus given to beekeeping by the distus given to beekeeping by the discoveries and improvements mentioned in the four previous installments of this review, is shown in the number of periodical publications which came to life in the United States since 1877. Naturally bee-culture is too small a branch of farming to sustain many periodicals; so these to sustain many periodicals; so these magazines had but a short life. The only ones which have endured to the

present day are the following: The American Bee Journal, estab-lished in 1861, had as its first editor Samuel Wagner, its founder, to 1872; Geo. S. Wagner, his son, to 1873; W. F. Clarke to August, 1874; then the National Bee Journal was merged into it, with Thomas G. Newman and Mrs. Ellen S. Tupper as editors, until March, 1876, when Mrs. Tupper was dropped and Newman continued alone. Later he took his son, Albert J. Newman, in partnership. In June, 1892, it passed into the hands of Geo. W. York, who retained it until May, 1912, when it came under its present management.

Gleanings, established in 1873 by A.

Gleanings, established in 1873 by A. J. Root, is still published by the A. I. Root Co., with his two sons, E. R. and R. H. Root, as associate editors. The Beekeepers' Review, established in 1888, by W. Z. Hutchinson, an excellent editor, already mentioned in these articles, was published by him until his death in May, 1911. E. B. Tyrrell published it for 1911. E. B. Tyrrell published it for two years, when it was handed over by him to its present editor and manager, E. D. Townsend, a man of great experience with bees. It now appears under the name of "Domestic Beekeeper."

The Booster, published at Redkey, Ind., by Geo. W. Williams, is devoted to the distribution of honey. It appears irregularly.

The Western Honey Bee, now four years old, is published by the California State Beekeepers' Association, with J. D. Bixby as editor. It is a lively little magazine.

We have also compiled a list, which is quite lengthy though incomplete, of the various periodicals on the honeybee, which have appeared in the United States from the early days to the present, and which have had a life of one single number to

ten years or more. As there are 40 or more of them and the list may be interesting to peruse, we will publish it in our next issue, with the por-traits and names of the few veterans who have been readers and contributors of the American Bee Journal for more than 30 years. It will end this review of "Seventy Years of Beekeeping."

BEE-KEEPING FOR WOMEN



Conducted by MISS EMMA M. WILSON, Marengo, Ill.

Bee Proof Armor for Women

There is nothing that will help more to give a woman the confidence and composure necessary to handle bees than the knowledge that she is clad in such a way as to reduce to a minimum the danger of stings.

A man can put on a veil and a pair of sleeves, tuck the bottom of his overalls into his stockings, and know the bees can touch no part of him but his hands. Unfortunately a woman's ordinary apparel is not easily converted into bee proof armor.

When I first began to work extensively with bees, I tried overalls. I found, however, that they are not very satisfactory. They are hot and heavy over other clothing, and where one's bee-yard is in view of the public highway are somewhat objectionable on that account. They are especially un-desirable where there is outyard work requiring journeys of several miles or more, in that an almost complete change of costume is necessary when arriving at and leaving the outyard. Then I tried bloomers, made knee length, and worn as a petticoat. I discovered, however, that stings on the shins and calves hurt as much as anywhere else, and that the swishing of the skirt is likely to make the bees more liable to sting just above the shoe tops.

Last summer I made a pair of bloomers that reach to the instep and fasten under the shoe like a legging. These I found entirely satisfactory. The bloomers serve as a petticoat, and are worn under a simple one-piece wash dress. They may be worn out of the bee-yard rell as in. When one leaves the yard the bottom of the bloomers can be pushed up to the knees, and thus be entirely hidden by the dress skirt.

Pattern for these bloomers can be got in any of the well known patterns under the name of tango bloomers. Light colored cotton material such as unbleached muslin or seersucker is the best goods to use, for it is easiest laundered and can be boiled when being

At first I tried elastic in the hem at the bottom of the bloomers, but found that as I worked the elastic was likely to slip up to the shoe top and leave a vulnerable spot which the bees were sure to find. After experimenting, I discovered that a piece of tape about 18 inches long is the best. This is run through the casing at the bottom of the bloomer legs. When the bloomers the bloomer legs. When the bloomers are put on, the tape is drawn close about the foot at the ankle, having the ends uneven in length. The short end is used to tie the tape about the ankle on the inside of the foot. The long end is then slipped under the foot like

a legging strap, brought up and tied to the bottom of the bloomer on the out-side of the foot, thus preventing the bottom of the bloomer from slipping up on the shoe. A safety pin is handier than a hook or eyelet of any kind, as an eye into which to tie the tape after running it under the foot. Merely pin the safety pin in the hem, run the tape through the eye at the end opposite the clasp and tie the tape. The safety pin is also handy for other reasons.

When through working in the bee-yard, slip the lower edge of the bloomer up to the knee, tie the tape about the knee, and use the safety pin to pin the bloomer to the stocking. One can then walk about without having the bloomers show below the dress skirt. If the tape should slip out of the casing the safety pin makes a handy bodkin for running it back in.

With any favorite bee veil, a pair of oversleeves with elastic at elbow and wrist, and a pair of these bloomers worn under a comfortable one-piece dress, a woman can do bee work with ease and comfort, and what is more important, with peace of mind.

CECILIA H. HENDRICKS.

Powell, Wyo.

Possibly the trouble you had with your bloomers slipping above the shoe top was because you did not make them quite long enough. I have worn bloomers with an elastic band run in the hem at each ankle, and also around the top for some the state of the s the top for some years, and as long as the elastic was kept snug and tight have had no trouble.

If, however, yours is inclined to slip, why not sew an elastic tape to each side of the bloomers at the ankle, so when drawn on the elastic tape would

when drawn on the elastic tape would pass under your shoes, and thus do away with the bother of tapes and safety pins, said safety pins being rather hard on stockings, I should imagine.

One of the things I have enjoyed about my bloomers is the ease with which they are donned, and also the feeling of perfect security, as there are no tapes to come untied just at a critical moment. cal moment.

Percale makes very nice bloomers.

Hiving the Swarm

If there are no low growing shrubs or small trees near the hives, it will save a lot of bother to have a few evergreen shrubs five or six feet high cut and set upright a few feet in front of the hives. Bees don't always do just what one wants them to do, but will almost always cluster on these nearby evergreens, where it will be easy to get them. A common tin pail of eight or ten quart capacity is a good thing to

get them in. Hold the pail under the cluster and gently detach it from the tree. It will fall into the pail, and the queen being with them, as she almost always will be, the cluster may then be carried to the hive and turned down in front of it. The bees will crawl from the pail into the hive without further trouble.

If the swarm should alight on a tall tree out of reach without climbing, and one has no swarm catcher, one may be improvised that will work very well. Get any kind of a pole that will reach them and is not too heavy to handle, nor yet too light to support the weight of the bees. Tie a white cloth around the end and on this smear some honey. Push this end carefully into the swarm. They will begin at once to cluster on the cloth-bound end of the pole, and by carefully moving it and holding it a little away from the tree one will soon have the cluster on the pole and can carry it where one pleases. The women iolks have to contrive methods suited to their strength. A curtain pole that held draperies between two rooms and was about 12 feet long was the handiest at one time; a stout piece of scantling at another.

A frame with comb in it with a little honey and brood will hold them in a new hive. Lacking this, smearing the inside with honey will usually keep them. A queen-trap at the entrance is a sure thing. My bees do not like a perfectly new hive and will almost always swarm out unless I use one of these methods to prevent it.
Glover, Vt. [MRS.] J. W. MATHIE.

[The suggestions given above are good. But if there should be any robbers about, as there are sometimes, if the bees swarm shortly after a heavy rain, the honey may attract them. We prefer a dry comb tied to the pole. If this comb is of the same size as the frames of the hive into which the swarm is to be put, it may be inserted into that hive at once.

Similarly, to retain the bees and prevent their deserting, the comb and brood mentioned by our correspondent will act efficiently.-EDITOR.]

Using Last Year's Sections

Last year being a poor honey year, Last year being a poor honey year, our supers were not filled as they should have been, a good many sections had just a little comb made on the foundation, and we thought we would put these in supers this year, but there were a great many where the comb was all built and contains a little Also, how does it work to put in the section boxes, that we took honey out of this year, where they are all clean and nice?

I have one large colony that was all right when I put them in the cellar, and lately when the temperature was at 36 degrees they commenced piling out and putting out dead bees. you think was the cause? AMATEUR.

The sections that had some of the foundation drawn out but no honey in them will be just as good as or a little better than if they had never been on,

provided they were not left on too long last fall. If sections are left on some time after bees stop storing, the bees are likely to daub them with propolis, and sometimes they varnish the surface of the foundation so thoroughly that the bees will not work them at all afterward

Sections that have a little honey stored in them should be cleaned out by the bees in the fall, and then they are excellent to use in the first supers the next season. Such sections are often called baits, because they bait the bees up into the supers to begin work sooner than when the super contains nothing but foundation. But if the honey be left in the sections over winter, it is pretty sure to be candied, and candied honey is objectionable in sections.

When the honey is cut out of a section box it is all right to use again if clean and nice.

It is a little difficult to say just why the bees should pile out with the cellar no warmer than 36 degrees, if by piling out you mean that they were in a cluster outside the hive, unless considerably excited in some way. But if they came out and ran about the entrance, throwing out their dead, there was nothing strange about it with the light shining in. Bees are dying off all through the winter, and if it is light enough the bees throw them out, and even in the dark they do more or less at it. Their quieting down when you darkened the cellar would indicate that the light caused the trouble.

MISCELLANEOUS NEWS ITEMS



Second-Hand Cans for Honey

Those of our readers who remember the investigation made by Mr. Pellett, in Chicago, reported on page 188 of our number for June, 1916, concerning the sale of honey, probably remember vividly that second-hand packages are very objectionable to purchasers. In the April number of the Western Honey Bee, we find an article by J. Edgar Ross, which gives great emphasis to the objections against secondhand cans for extracted honey. As Mr. Ross' experience is identical with our own, we will quote what he says on the purchase and use of secondhand 60-pound cans:

"In the spring of 1912 the eastern bottlers of a much-advertised line of honey were advertising second-hand cases and cans. I had some correspondence with them and they described the cans as entirely free from rust on the inside, cases in good condition, and in nearly all cases free from marks to indicate the producer's name. Where they were so marked they specifically agreed to have the marks scraped off with a box-scraper. They said they were not recommending them for water-white honey, but assured me that for the grade of honey produced in our valley I would find them 'entirely sat-isfactory.' I wired an order for a carisfactory.' I wired an order for a car-load, 1300 cases, to be sent S. D. B. L. (Sight draft on bill of lading). They came very promptly, but to my surprise I found that the bill of lading did not permit examination.

"If I had such a situation to meet again I would wire for a permit to examine the goods, and before accepting them and paying the draft I would get an adjustment for those that failed to come up to specifications. But there were many things that I did not know when I paid the draft and the freight and hired a drayman to haul the cases to my yard, taking it for granted that they would be all right. The rush season was just beginning, and beyond notic-

ing that a number of the cases still bore the placard of the Continental Oil Company on the end, entirely innocent of any marks of a box-scraper, I did not inspect my purchase until time to

"Not even then, though I found a surprisingly large percentage of the cans unfit for honey of any grade, did I realize how badly I had been stung until the season was drawing to a close and the manager of our association was having some correspondence with this same firm in regard to the sale of honey. They enquired whether the association used new or second-hand cases, and added, "We would not care to handle your honey if you use second-hand cases." That, of course, was enough to open the eyes of a blind man. If honey in 'entirely satisfactory' cases was so unsatisfactory that they did not care to handle it, there was nothing left for me to do but figure up my loss and forget all but the lesson.

"The cases had cost me, laid down, 40 cents each. Of the 2600 cans, 312 were utterly useless. Some of these were so rusty on the bottom that you could push your hand through the thin shell of remaining tin. Seventy-one contained a thin liquid as black as your hat and with an odor like a sewer. My guess is that these had been rinsed out to get all the honey, and from a tea-cupful to a quart of the last rinse water left in each can. This had turned to vinegar and the acid had eaten the tin and part of the iron from the inside of the can. They were entirely unfit for honey, but after cleaning them up I sold them to a dealer in lubricating oil for about enough to pay for the labor of cleaning them. Ninety-four cans, though in fair condition on the inside, were so disreputable looking on the outside that I couldn't insult my honey by putting it into them, so the oil man got them also. Two hundred and thirty cans contained hard, dry chunks and cinders of what had once been honey. Some of these chunks were actually burned into the tin, and they couldn't be cleaned by any practical process.

"I may go into the nursery business some day. If I do, these will serve

a iseful purpose; I can start trees in them. Thirty-one of the lot had holes in them which I soldered up and made them useful. My loss was 707 cans—sl ghtly more than 27 percent of the er tire lot. The cost of inspecting, scrting and cleaning them was about 5 cents a case. Now, how badly was I sting? I never had any complaint regarding the honey in the cans I did use, but I hate to think of what would have happened to me if I had used them all."

We did not have as expensive an experience with second-hand cans as Mr-Ross reports, but we once invested \$20 in 100 cases of two 60-pound cans, warranted as good as new. Of these we used about 20, with much regret afterwards, and the balance were wasted or used for entirely different purposes Don't buy second-hand cans nor No. 2 shipping cases for comb honey.

A Single Slice of Bread.—WASHINGTON, May 5.—A single slice of bread seems an unimportant thing. Yet one good-sized slice of bread—such as a child likes to cut—weighs an ounce. It contains almost three-fourths of an ounce of flour.

If every one of the country's 20,000,000 homes wastes on the average only one such slice of bread a day, the country is throwing away daily more than 14,000,000 ounces of flour—more than 875,000 pounds, or enough flour for over a million one-pound loaves a day. For a full year at this rate there would be a waste of over 319,000,000 pounds of flour—1,500,000 barrels of flour—enough to make 365,000,000 loaves.

Fourteen and nine-tenths bushels of wheat on the average are raised per acre. It would take the grain of some 470,000 acres just to provide a single slice of bread to be wasted daily in every home.

Honey vs. Cane Sugar.—The magazine Good Health, published at Battle Creek, Mich., contains in its April number an article on "Sugar as a Human Food," by that authority, John Harvey Kellogg, some parts of which are related to honey and its consumption, so we take the liberty of quoting from it:

"In the process of digestion the saliva converts starch into malt sugar, while another ferment, 'maltas.,' converts the malt sugar into dextrose. Cane sugar is not acted upon by the saliva, by the gastric juice, by the pancreatic juice or by the ordinary intestinal juice. But far down in the lower part of the intestine there is produced a small amount of ferment known as 'sucrase,' which converts the cane sugar into dextrose and levulose, the same forms of sugar we find in honey.

"A pound of cane sugar when taken into the body is converted into a pound of honey. But it takes four times as long to digest, absorb and utilize an ounce of cane sugaras it does an ounce of malt sugar or an ounce of starch. This is a serious objection to the use of cane sugar, but there is this other and much more serious objection, that cane sugar is an irritant.

"When we take starchy foods, the saliva begins acting upon the starch as soon as it is taken into the mouth. It rapidly converts it into malt sugar, which is little by little converted into molecules of dextrose and passed on as fast as formed into the small intestine.

tine.

"This process is a gradual one. The action of saliva upon starch is very prompt, but the amount produced is very small, and it is absorbed as it is produced.

"Starch itself is bland. All farinaceous foods that have been well chewed are much like a poultice in the stomach, soft and unirritating, and the sugar that is produced from the starch is carried off as fast as it is produced. Thus the stomach is not accustomed to the contact of a strong solution of sugar.

contact of a strong solution of sugar.

"Cane sugar is the most common of all causes of teeth decay. Yet sugar itself does not attack the teeth. It irritates the stomach and causes it to pour out a large amount of acid gastric juice, and that is where the mischief lies.

"Cane sugar causes decay of teeth, also, in another entirely different way. Teeth require lime, and the amount of lime required by the body is 15 to 25 grains a day. This amount of lime is carried out of the body chiefly through the bowels, although to some extent through the kidneys. We must replace that lime every day. If we do not, the body will be gradually drained of lime.

"A certain amount of lime is needed for our intellectual processes. There is a little lime in the brain and in most fluids and tissues of the body, but the lime is found chiefly in the bones, while the teeth also contain a considerable proportion of this most important mineral substance.

"When we do not supply the body with lime the bones are robbed of their store of lime. If, for instance, one is only eating five grains of lime, the body will take 10 to 20 grains out of the bones every single day, and it will take but a few years for a considerable amount of lime to be taken out. It was found by Prof. Virchow that when an animal is deprived of lime it obtains its supply from the least active bones, as the bones of the head and those the least essential to life. It would not do to take the lime out of the arm bones because it would make them flexible, nor to take the lime out of the leg bones, because they would become so limber; so Nature very wisely and sagaciously takes the lime out of the skull bones and the face bones and out of the teeth."

W. J. Forehand.—With the passing of W. J. Forehand one of the best known queen-breeders of the South has dropped out of the ranks. For more than 25 years he was engaged in queen-rearing in Ft. Deposit, Ala. Of late his two sons, N. Forehand and A. I. Forehand were associated with him in the business under firm name of W. J. Forehand & Sons. The boys will continue the business under the same name.

All his life Mr. Forehand lived in the vicinity of Ft. Deposit, having been born there Aug. 11, 1848, and died Feb.

6, 1817. During his early life he was a farmer, and his first interest in bees was as a farm side line. For a time he carried on queen-rearing in connection with his farming, but for nearly a quarter of a century he made beekeep-



THE LATE W. J. FOREHAND, OF ALABAMA

ing an exclusive business. He bred 3-banded Italian bees exclusively, and was well equipped for his extensive queen business.

Labor Saving Devices for Hiving.—
Times demand much less expensive labor-saving methods. The old method of lugging around hives to hive swarms from various sections of the yard was too laborious and caused confusion of many swarms and loss of valuable queens, consequently I have adopted the plan of setting my empty hives where they are to remain permanently.

where they are to remain permanently. I have prepared half-bushel baskets by fastening the handles permanently so they will not swing from side to side, as the handle left to swing would cut off and kill many bees. One-half of the top of the basket should be covered with a thin board fastened securely to the top of the basket. Now make a hook of No. 9 galvanized wire and and fasten to the top of the handle. This hook should be large enough to hook over a two to four inch limb. When your swarm commences to alight, a cluster about the size of your hand or less should be shaken into the basket. Then hook it fast to the limb and go to your next swarm, if any, with extra baskets and repeat the process, looking out now and then that all are alighting properly.

alighting properly.

Now when the first swarm has clustered in and over the basket, take down and replace with an extra empty basket. Should another swarm be drawn or attracted to this same place they will draw in, especially so when a previous swarm has left its odor, as the peculiar swarm odor tends to draw the following swarms that come in that immediate location.

Now carry the swarm that is clus-

ered in the basket to the empty hive that is permanently located a distance away on the opposite side of the apiary.

Turn over carefully and empty close in to the hive being very careful not to cause a flight of bees. The longer a swarm is clustered the less liable it is to take flight, but it should be hived as soon as possible after clustering. When clustered too long they are liable to send out scouts and get a new loca-tion of their own selection, and when they do start you are liable to lose prime swarms. In my prime swarms are my profit, as they naturally work with greater vigor and give the desired results .- M. H. MENDLESON, in California Cultivator.



Send Questions either to the office of the American Bee Journal or direct to Dr. C. C. Miller, Marengo, Il...

He does NOT answer bee-keeping questions by mail.

Putting Bees in a Hive Where Bees Have Died

I have one colony of bees in a 2-story 8-frame hive. The bees died about three weeks ago. I think they had diarrhea.

I. Would it be all right in the spring to put three pounds of bees with a queen in a hive and let them clean it out?

2. Would it be better to make two hives out of the one two story hive and put three pounds of bees with a queen in each hive?

3. There is plenty of honey in the hive. but it is beginning to mold. Would this kill the new queen?

new queen?

4. What is it that makes the comb in the frames moldy?

5. Could I in any way stop the combs from further molding?

PENNSYLVANIA.

Answers .- I. Yes, brush off the dead bees, scrape off any filth on top-bars or elsewhere and the bees will do the rest.

2. Yes, provided you want to have the additional colony.

3. No.

4 Mold. It is a minute vegetable growth favored by warmth and moisture.

5. Put them in a dry, sunny place.

Destroying Queen-Cells-Transferring-When to Extract

I. When cutting out queen cells do you cut them all out or do you leave one?

2. I have three stands of bees in box-hives, can I take the bottom out of the box-hives and place them on top of standard hives? How long will it take the bees to make their home in the standard hives? Would it be all right to place a queen excluder between the two hives about three or four weeks after they commence to work in the lower hive, and could I leave the queen excluder on until all the young bees are out of the the top hive, then take it off? Can I transfer these bees this way without danger of a swarm?

3. Will it pay me to change from comb to extracted honey when I can get 15 cents a pound for either?

4. How long should comb honey be sealed over before I can extract it, without danger of it becoming granulated?

ILLINOIS.

Answers.-I. Cut out all when your object is to prevent or delay swarming. If you are doing it to prevent afterswarms, then leave one.

2. If the box-hive be small, the bees may begin work in the lower hive within a week. If it be large enough it may take a month. Don't wait three or four weeks, but put the excluder between the two stories just as soon as the queen is in the lower story, and three weeks later all the worker-brood will have emerged. With this management there would be no swarming.

3. Yes, indeed.

4. Except in rare cases honey may be extracted as soon as all sealed, although it is better to wait longer.

How to Trace from Wher; a Swarm Issues. Uniting

I. I keep some bees, and when they swarm I hardly ever see them until they are in the

air, settled on the branch of some tree. What bothers me is to tell what hive they emerged from, for when I get them hived I want to put them back on the old stand.

want to put them back on the old stand.

2 I have read somewhere that in order to unite two swarms of bees or to introduce a queen to them a good plan is to wet them thoroughly with a fine spray of water to which has been added oil of peppermint, so that they will have the same odor, and therefore, will not be able to detect any strangers among them. Now in using this method how would I reach all, or nearly all, of the bees with the water? Would you take the cover off and spray over the racks and let what would run down among the racks?

MICHIGAN.

MICHIGAN.

Answers .- I. You can generally tell pretty well by looking at the entrances of the different hives, even if you don't look until the swarm has settled. Few bees will be seen starting for the field, and you may see some very young bees crawling on the ground not far from the entrance. If you fail in that, go ahead and hive the swarm, setting it temporarily two rods or more from its old stand. Take a pint or so of the bees of the swarm, dump them on the ground some two rods away from the swarm, and quickly dust them with flour, and hurry to watch for floury bees entering their old hive. If you are suspicious, but not certain, of some colony, open the hive and look for sealed queen-cells and a scarcity of bees, and also for a small proportion of the brood unsealed.

2. If you try that plan, take peppermint essence, not oil, and it will be well to sweeten the water. Yes, take off the cover and spray over the top bars. If the bees scattered around are not considerable in number, it is not necessary to spray them.

Foulbroad

In October last, when arranging my bees for winter, I noticed in colonies Nos. 2 and 3 a few cells of brood affected. There being only a few and at the close of season, it did not bother me very much. The past winter being very severe, little if any brood was reared before the latter part of February, Having left them plenty of stores it was the only attention I gave them only to listen at the entrance to tell if all were quiet. Being unable to make an examination before March 24, I found at this date No. 3 robbed, leaving a few cells of affected brood, showing the queen had begun to lay. Numbers 1, 4, 6 and 10 brought to their hives this disease from No. 3, I am sure.

I. If this disease is transmitted in the

from No. 3, I am sure.

I. If this disease is transmitted in the honey how can a cure be effected by removing the queen until all brood is hatched and the bees clean house? Is not the affected honey there still? In the American Bee Journal for April. 1015, on page 120, paragraph 4, it reads as if the disease was transmitted by the queen also. Would you recommend requeening in my case, where the disease has only a weak start?

2. What do you think of the water treatment for foulbrood as described on page 173, May, 1015, of this same Journal?

3. Has this been tried out by many?

4. Is there an inspector for this State? If

so, can you give his address? MISSOUR!

Answers.-Just between you and me [1]] tell you that there's a whole lot of things about bees that I don't know very much about, and this foulbrood business is one of nem. I don't know for sure just how Euro-ean foulbrood is first brought into a hive, them. whether in the honey or whether a bee that brings honey from a diseased colony brings spores on its feet or brings them in the honey. But after the disease is once in a hive I think it's continued, not by the honey, but by the nurses eating the juices of the diseased larvæ, and I know that a cure generally follows if there is a break of sufficient length in the rearing of brood.

I. Yes, on the page you quote it certainly looks as if the queen carried the disease, and so would continue it in her own colony. In spite of that, if I had a mild case, and the queen was valuable, I'd try caging her ten days

2. I don't know anything about the water treatment personally, and have no fixed opinion.

3. I do not suppose it has.

4. Yes. He is M. E. Darby, of Springfield.

Cutting Out Drone-Comb

When is the best time of year and the best time of day to cut out drone comb, and how can it be replaced with worker foundation? PENNSYLVAINIA.

ANSWER.-The best time is a matter largely of the beekeeper's own convenience. Other things being equal, there is no better time in the year than spring or early summer, after bees are in full flight and before the combs begin to be filled with honey. It doesn't matter about the time of day, unless you have to do with combs that contain brood, in which case it should be in the heat of the day. Generally, however, it can be managed so that you will have no brood in the combs to be mended, and little or no honey.

To replace drone comb with worker foundation, cut out the drone-comb, and then on one side trim away the cells so as to expose a margin of perhaps one-fourth inch of the septum. Cut your patch of foundation to fit the hole and cover the exposed septum Unless the day or the room is very warm, you must in some way heat the foundation so that it shall be warm and soft, and then press down quite firmly the edge of the foundation upon the margin of the septum. Instead of using foundation it may be still better to use patches of worker-comb just large enough to fit quite snugly into the

Color of Carniolans-Putting on Supers

r. I noticed in the March American Bee Journal that you say the Carniolan is a black bee, and in an article in the April Bee Journal by Frank Rojina, it is stated that the Carniolan bee is in color silver or light gray. Now, who is right?

2. When is the best time to put supers on the hive?

Answers - I. If you expect to find Carniolans the color of the print on this page, you will find yourself mistaken. Equally mistaken will you be if you expect them to be in color silver, looking just like a new siver dime. But if you will compare them very carefully with what are called black bees, you will find there are bands inclining to the color of silver, allowing one to say they are silver color. Strictly speaking. what we call black bees are very far from being black. And if you will look again you will see that I did not say that Carniolans are black, but that they "are so much like the blacks in appearance that it is hard to distinguish them." And that's true, too; for unless you look closely and carefully you Die

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will hardly notice the small part that differs from the blacks.

2. Put on supers when you see the very first blossom on the plant you expect your first harvest from, which with you is probably white clover.

Swarms—Caucasians—Beginning in Bee Business

1. If bees are kept in one-story hives all summer, how many times will they swarm?
2. Are the gray Caucasians better for out-doo wintering?
3 Will the gray Caucasians work better on red clover than the Italians?
4. How can I get a good start in the bee business?

ANSWERS .- I. If the hive is large enough, a colony may not swarm at all; if small enough, even as small as an 8-frame hive, with no additional room given, a colony may swarm one to eight times, and possibly not at all,

2. Probably not.

3. I don't think so.

4. That depends. If you can buy full colonies in your own neighborhood, that's your best chance. If you send away, it's a question between buying nuclei or bees by the pound. With little or no experience, it would be better to buy nuclei.

American Foulbrood-Colonies Stealing Eggs

I. Is there any way that you know of that would be safe to use extracting combs taken from colonies affected with American foulbrood the same as European foulbrood?

2. What is your plan for treating American foulbrood?

3. Is it safe to treat colonies affected with American foulbrood?

4. Have queenless colonies ever been known to steal eggs from other colonies to rear a queen?

5. Do you know if queens are ever mated with drones produced by laying workers?

KANSAS.

Answers.-I. There would be a risk, and I know of no special plan or treatment that would lessen the risk. Yet if the disease is rather common in the neighborhood it might be worth while to try using such extracting combs.

2, I never treated but one case of American foulbrood, and that was by fire. I burned up bees, combs, frames, everything but the hive; I couldn't get that in the fur-nace door. And that's the advisable plan with only one or two diseased colonies. If I had a number of cases I should use the usual brushing plan.

3. No, indeed.

4. They have been said to do so; I don't know whether it is correct or not.

5. I don't know; I suppose it is possible, but doubt its frequent occurrence.

Transferring

I hived a swarm on narrow starters last year. They built combs in every direction so that I cannot move a frame. I would like to requeen. Will it be best to drum them into an empty box and kill the queen?

OKLAHOMA.

Answer.-Perhaps it would be as well to wait until they swarm, hive swarm in good hive, and break up old colony 21 days later.

Size of Hive for Wintering-When to Put On Super

r. Will the body of an 8 frame hive hold sufficient food for a strong colony to winter? 2. Should inner cover under lid be put on

2. Should inner cover and in summer?
3. Should supers be put on when bees are unpacked in spring?
4. What causes water in honey at this time of year?
5. Can combs partly made or partly filled in the fall be put back with supers in spring?
ILLINOIS.

Answers.—I. The body is large enough to contain abundance of food, but often it

does not contain enough. If the combs are mostly filled with brood until late in the season, there may be a shortage of stores. If I should leave my 8-frame hives to them-selves from fall to next harvest, I should expect many of the colonies to starve.

2. I don't know just what the arrangement is, but at a guess would say it might be kept

3. No, indeed; in your locality supers should not be given before the first cloverbloom opens.

4. Probably the condensation of vapor that

comes from the bees.

5. If they are combs in sections, it is not well to use them unless the bees cleaned them out in the fall. Brood-combs may be used all right, but if honey has been left over winter in extracting combs the honey stored in them will be affected by it.

Royal Jelly-Aster Honey

I. What is royal jelly and what does it look like?

2. What is Ester honey?

IOWA.

Answers .- I. It is the food given by the nurse-bees to the larvæ in queen-cells. It looks a little like thick milk; but what is left in the cell after the young queen emerges is more solid, looking more like jelly.

2. I think I never saw mention of Ester honey. Perhaps you mean aster honey, which is gathered in the fall from asters, being rather dark and strong in flavor.

Miscellaneous

I. What is the best method to use to find the queen?
2. Are the golden bees of the Italian breed or are they of another race altogether?
3. What is the difference between the Carniolan and Caucasian bees?
4 Can artificial or Weed process of comb be told apart from the original article when placed side by side?
5. Of what breed are the leather-colored bees?

placed side by side;

5. Of what breed are the leather-colored bees?

6. If a person wishes to increase his colonies, which way would be better, by swarming or by dividing?

7. Which is the better hive for this locality, the single-walled hive or the double-walled?

8. What is the best food for bees, if they have to be fed?

9. Will not the European war greatly interfere with beekeeping in Europe?

10. What is the lowest price in history that honey has sold for?

11. What is the highest price in history that honey has sold for?

12. Is swarming entirely useless, and is it a waste of energy and time?

13. Will bees build the comb straight in sections where comb foundation is not used?

14. What breed of bees is the genflest?

15. Is there any country where movable frame hives have never been introduced?

ILLINOIS.

ANSWERS .- I. There is no given rule. Don't use much smoke, and go about it quietly. If you stir them up so as to get the bees to running, shut up the hive until an hour later or until another day. Look on the combs where the brood is, although sometimes she may be elsewhere, even on the bottom or sides. If you don't find her after looking the combs over two or three times, give it up until another time.

2. They are Italians with more yellow than the original Italians.

3. Carniolans swarm more, and some strains of Caucasians are gentler.

4. I doubt if you or I could tell the different kinds apart; the manufacturers might.

5. Italians.

6. That depends on circumstances. One with not very much experience, who can be on hand to watch for swarms may do best to leave the matter of increase to the bees, only insisting that there shall be no second swarms. Those who can be with their bees only part of the time should take increase

into their own hands. The experienced may do either or both ways.

7. All things considered, perhaps the single-walled hive is better.

8. Nothing equals good honey. Granulated sugar, in syrup or candy, comes next.

o. It has interfered greatly, although in some parts the business is said to be going on much as usual.

10. I don't know. The lowest I have heard of has been giving it away, although it is possible a reward has been paid for taking it.

II. I don't know. I have read of its being sold for a dollar a pound or more.

12. In its proper time and place it is very useful. For practical beekeepers it is pretty generally worse than useless.

13. No.

14. Hard to say. Caucasians have had that reputation, but some Caucasians have been reported as vicious.

15. Likely, but I don't know.

Size of Tin Top Cover

What size do you find or think most convenient for your 36-inch dead air space, tin top cover? WASHINGTON.

ANSWER .- Mine are just the width of the top of the hive. Some are just the length, and some % inch longer. I think I like the latter rather better, because less care is needed in putting on the cover.

Color of Breeds

I What color are the Italian queens? What is the difference between the Italians and blacks?
2. What is the use of having a division-board in a colony?
3. What color are the queen cells just after they are built, and what color are they just before the virgin hatches? NEBRASKA.

Answers -1. The color varies from a bright yellow to the color of a black queen. But the workers should not vary but each have three yellow bands. In general, Italians differ from blacks in gathering more honey and defending their combs better from the depredations of the bee-moth.

2. What is sometimes called a divisionboard is really a dummy. It is used at the side of the hive so that it will be easier to take out the frames after the dummy is taken out. Some, however, prefer not to

have the dummy.

3. When a queen-cell is built it is likely to be much the color of the brood-comb on which it is built. If this be old and dark, the cell will be rather dark, although never so dark as a very old comb; while on a new comb it will be light, growing a little darker at the time the virgin emerges.

Shook Swarming, Etc.

I. Please tell how shook swarming is done, and if you advise such swarming?

2. What do you think of this, to contract a ro-frame hive to only six frames just before the main honey flow and put dummies in place of the frames Will this force the bees to go into the supers faster or will the brood-nest be too small for brood-rearing and force the queen to go into the sections and lay eggs?

3. If I have Ico swarms this fall and only want 50 hives in the cellar, should I kill 50 of them and extract the honey from the combs, or should I unite the swarms?

WISCONSIN.

WISCONSIN

Answers.-I. Shake swarming is advisable in many cases, especially where it is not feasible to be on hand to watch for natural swarms. To shake a swarm you simply shake or brush all or nearly all the bees from all but one comb of brood, leaving in the old hive the queen with all or nearly all the bees, the one comb of brood, and filling the hive with frames filled with foundation or else with drawn combs, The disposal you

make of the combs of brood taken away depends on circumstances

2. Whether the queen goes up or not you will not be likely to get as good results as to leave all the brood. Might try one or two cases to see for yourself.

3. Better unite; and it might be better to wait until the following spring before uniting.

Distance of Frames-Queen Excluder-Queen Introduction

I. (a) What should be the distance between bottom-board and frames? (b) Between top of frames in brood-chamber and bottom of frames in super?

2. Is it necessary to use a queen-excluder? If yes, when?

3. Do you consider the "wire entrance guard," as shown in Root's catalog, page 33, adequate to prevent losing swarms when the apiarist is away all day?

4. What are the exact measurements, inside, of a 10 frame hive, full story?

5. What is the best method to introduce a queen, and when is the proper time?

NEW YORK.

ANSWERS.—I. (a) The distance varies from

Answers.-1. (a) The distance varies from half an inch to 2 inches. (b) About 1/4 inch.

2. It is not necessary unless for some reason you want to prevent the queen from going where workers are allowed to pass. In working for section honey, excluders are not needed provided the sections are filled with foundation. Generally they are used for extracted honey during the time supers are on.

3. Yes, provided there is no crack anywhere about the hive that will let the queen

4. There has been no little variation, and I don't know that there's any fixed standard. There is, however, a standard for the Langstroth frame, which is 175/x95/6, and the hive must be of such size that there shall not be less than % inch between the ends of the frames and the sides of the hive, and between top bars of the lower story and bottom-bars of story over.

5. Some say one way is best, some another. Perhaps the most general way is by means of a provisioned queen-cage, allowing the bees to eat the candy and release the queen.

Classified Department

[Advertisements in this department will be inserted at 15 cents per line, with no dis counts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

BEES AND QUEENS.

PHELPS' Golden Italian Queens will please you.

FULMER'S Gray Caucasian queens are winners; also by frame and pound.

MINNESOTA bred Italian queens. Virgins, 45C; mated, \$1.00. O. C. Wandrie, Frazee, Minn

Bres and Queens from my New Jersey plary. J. H. M. Cook, 1Atf 84 Cortland St., New York City. apiary.

TESTED leather-colored queens, \$2 00; after June 1, \$1.50; untested, \$1 00; \$10 per dozen. A. W. Yates, 3 Chapman St., Hartford, Conn.

PLACE your order early to insure prompt service. Tested, \$1.25; untested, \$1.00. Ital-ians and Goldens. John W. Pharr, Berclair, Tex.

PHELPS' Golden Italian Bees are hustlers

Vigorous prolific Italian queens \$1.00; 6, \$5.00, June 1st. My circular gives best methods of introduction. A. V. Small. 2303 Agency Road, St. Joseph, Mo.

FOR SALE—A few colonies of Italian bees in large hives. Also Barnes' foot power saw and foundation mill. Closing out.

J. L. Strong, Clarinda, Iowa

My Bright Italian queens will be ready to ship after April 1st at 60c each. Send for price list. Safe arrival and satisfaction guaranteed. M. Bates, Rt. 4, Greenville, Ala.

FOR SALE—Bright Italian queens at 75c each; \$7.50 per doz. Ready April 15, Safe arrival and satisfaction guaranteed. T. J. Talley, Rt. 3, Greenville, Ala.

GOLDEN ITALIAN QUEENS, no better honey gatherers anywhere at any price. Untested, \$1,00. Tested, \$2.00. Wallace R. Beaver, Lincoln, Ill.

ITALIAN QUEENS from the E. E. Mott's strain of bees. Unt., soc each; \$0.00 per doz. Safe delivery guaranteed.

Zarl E. Mott, Glenwood, Mich.

FOR SALE-Golden untested queen, \$1.00; 6 for \$5.00. For quantities, write me. Satisfaction guaranteed. R. O. Cox, Rt. 4, Greenville, Ala.

For Sale—18 ten-frame wood bound zinc excluders, new, 30c each. Fifty 8-frame wood and zinc excluders, 20c each.
D. G. Little, Hartley, Iowa.

Finest Italian Queens from June ist to Nov. ist. \$1.00 each; 6 for \$5.00 My circular gives good methods. Ask for one. J. W. Romberger, 3113 Locust St., St. Joe, Mo.

RHODE ISLAND Queens, Italian, Carniolan, Caucasian and Banats. Tested in May, \$2.00, Untested, \$1.50. Full colonies and bees by the pound. Send for circular, Edwin Tuttle, Woonsocket. R. I.

QUEENS OF QUALITY—Select 3-band leather colored Italians, bred for honey production. Untested queens, 75c each; six, \$4.25; 12, \$8.00. Circular free.

J. I. Banks, Dowelltown, Tenn.

GOLDENS that are true to name. One race only. Unt. 75C each; 6, \$4.25; 12, \$8 00. For larger lots write for prices. Tested, \$1 50. Sel. test, \$2.00. Breeders, \$5,00 and \$10 Garden City Apiaries, San Jose, Calif.

CLOVER QUEENS, pure Italian, untested, 75c. Tested, \$1.50. Bees with queens by the pound or nuclei. No disease, safe delivery and satisfaction guaranteed.

J. F. Coyle, Route 27, Penfield, Ill.

HEAD your colonies with some of our vig-orous young three banded Italian queens. Untested, June 1, \$1.00; per doz., \$0 00; nuclei and full colonies. Satisfaction guaranteed. A. E. Crandall & Son, Berlin, Conn.

QUEENS—3-banded Italians. Bred strictly for business. Untested, 60c. Tested, \$1.00. Safe arrival and satisfaction guaranteed or money refunded. Sinking Creek Apiaries, Gimlet, Ky.

QUEENS—Best Italians 50c each; \$5.50 per doz. Virgins, 25c each; \$2.75 per doz Orders taken now; filled in rotation after May 20, Any of my queens proving mismated replaced free. A. F. Bray, Rt. 2, Kelso, Tenn.

WELL BRED 3-banded Italian queens. Prices for June, one, \$1.00; 6 for \$5.00. Tested, \$1.25; 6 for \$7.00. Write for circular. Nuclei and full colonies ready now. J. F. Diemer, Rt. 3, Liberty, Mo.

To Inquirers:—I sell no queens directly but have an arrangement with the Stover Apiaries, Starkville, Miss., which I keep supplied with best breeders, and they can supply you with my stock.

C. C. Miller, Marengo, Ill,

FOR SALE—Because of change in business, must sell my 225 colonies of high-bred Italians in 10-frame hives. Equipped for extracted and comb honey Unlimited alfalfa pasture and home market for all. Splendid opportunity for bee-man in this new country.

A. W. F. Lee, Cordell, Okla.

GOLDEN Italian Queens by June 1st. Untested, 75C. or six for \$1.25; doz., \$8.00. Select untested, \$1.00. Tested, \$1.25; six for \$7.00. Breeders, \$5.00. Pure mating guaranteed. Send for circular, J. I. Danielson, Fairfield, Iowa.

My Bright Italian queens will be ready to ship April 1 at 75c each; virgin queens, 30c each. Send for price list of queens. Bees by the pound. Safe arrival and satisfaction guaranteed.

W. W. Talley,
Rt. 4, Greenville, Ala.

QUEENS OF QUALITY—Our Hand-Moore strain of three-banded Italians are beautiful, and good honey gatherers. Bred strictly for business. Untested, 75C: half doz, \$4.00. Select, \$1.00, W A. Latshaw Co., Clarion, Mich.

SWARTS' Golden Queens of quality; produce bees that are not surpassed by any bees, in any way, anywhere. Satisfaction guaranteed. Mated, \$1.00. Select, \$1.25; 6 for \$5.00. Tested, \$1.75. Select, \$2.00. D. L. Swarts, Rt. 2, Lancaster, Ohio.

GOLDEN ITALIAN QUEENS that produce golden bees; good honey gatherers; no foul-brood. Select tested, \$1.25. Tested, \$1.00. Untested, 75c; 6, \$4.25; 12, \$8.00. After July 1st, untested, 65c; 6, \$3.75; 12, \$7.00 No nuclei or bees for sale.

OT. Gaster, Rt. 2, Randleman, N. C.

Fine Italian Queens—Can furnish select stock at the following prices: Single queen, \$1.00 each; 2 queens, \$1.75; 3 queens, \$2.50; 12 queens, \$0.00. Six or more at dozen rates. No disease. Safe arrival. I am filling orders by return mail. Give me a trial. Chas. M. Darrow, Star Rt., Milo, Mo.

GOLDEN ITALIAN QUEENS bred strictly for business that produce a strong race of honey gatherers. Unt., each, 75c; 6, \$1.25; 12, \$8.00. For larger lots write for prices. Tested each, \$1.50. Prompt service and satisfaction guaranteed. L. J Dunn, 50 Broadway Ave., San Jose, Calif.

GOLDEN QUEENS that produce Golden Workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, \$1.00 each; Tested, \$2.00: Breeders, \$5.00 and \$10.00, 2Atf J. B. Brockwell, Barnetts, Va.

GOLDEN ITALIAN QUEENS from a breeder that was 1st premium winner at Ill. State Fair in 1016. Untested, 75C; six for \$4.25; 12 for \$8.00. Select untested, one, \$1.00; 6, \$5,00; 12, \$9.00. Tested, \$1.50; 6, \$8.00.

A. O. Heinzel, Rt. 3, Lincoln, Ill.

Business First Queens—three-banded Italians. Select untested, \$1.00 each. Your queen sent by return mail or your money back. I will send each one ordering from me a plan for preventing swarming if you desire. No disease. Send for price list.

M. F. Perry, Bradentown, Fla.

Good Italian Queens—Tested, \$1.00; untested, 750. One-pound packages with untested queen, \$2.25; 2-1b. package, \$3.25. One-pound package with tested queen, \$2.50; 2-1b. package, \$3.50. Nuclei with untested queen, 2-frame, \$3.50; 3-frame, \$4.00. With tested queen, 2-frame, \$3.50; 3-frame, \$4.25. We can please you. G. W. Moon 1904 Park Ave., Little Rock, Ark.

PHELPS' Golden Italian Queens combine the qualities you want. They are great honey gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; Tested, \$3.00; Breeders, \$5.00 and \$10. C. W. Phelps & Son, 3 Wilcox St., Binghamton, N. Y.

GOLDEN ITALIAN queens of the quality you need. Bred strictly to produce Golden bees that get the honey. One, 75c; 6, \$4,25; 12, \$8.25; 50 or more, 60c each. Prompt delivery and satisfaction guaranteed.

L. J. Pfeiffer, Rt. A, Bx. 210, Los Gatos, Calif.

FOR SALE—Three-band Italian bees and queens; bred from the best honey gathering strains obtainable. Untested queens, 75°C; 6, \$4 25; 12, \$8.00. Tested queens, \$1.50 each. For queens in large quantities and bees by the pound write for prices.

Robt. B. Spicer, Wharton, N. J.

I Am Now prepared to supply you with Golden 3-banded and Carniolan queens. Give me a trial and be pleased. Tested, each, \$1.00; 120 r more, 85c each. Untested, 75c each; 12 or more, 65c each. Ten percent discount on orders booked 30 days before shipment. No credit; no c. o. d. shipments. I. N. Bankston, Eagle Ford, Tex.

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GOLDEN 3 BAND Italian and Carniolan queens: Virgin, one, 50c; 6, \$2 50; 12, \$4.00; 100, \$25. Untested, one, 75C, 6, \$4.20; 12, \$7.80; 100, \$60. Select untested, one, 85c; 6, \$4.80; 12, \$7.00; 100, \$70. Tested, one, \$1.00; 6, \$5.40; 12, \$10.20; 100, \$10. Select tested, one, \$1.25, 12, \$13.80; 100, \$100. Breeders, \$3.00 each. Bees in packages without combs: %-lb., 75c: 1-lb., \$1.25; 2-lb, \$2.25. Nuclei, 1-frame, \$1.25; 2 frames, \$2.25; 3 frames, \$3.00. Add price of queens wanted. We guarantee safe arrival and no disease.

C. B. Bankston, Buffalo, Tex.

GRAY CAUCASIANS, an exceptionally vigorous, prolific, long lived race. Early breeders, gentle, and best of honey gatherers. Untested queens, \$1.50. Select unt., \$2.00. Tested, \$3.00. Select tested, \$3.50. After June 20th, untested, \$1.00. Select unt., \$1.25. Tested, \$2.00. Select tested. \$2.50. Improved northern bred Italian queens as good as the best at same prices. If you desire Caucasian queens, please let me book your order early. Ask for circular. F. L. Barber, The Queen Breeder. Lowville, Lewis Co., N. Y.

FOR SALE—Famous Root's, Moore's, Davis' extra select strain of honey gatherers. Mated with Geo. B. Howe's select drones; unsurpassed for honey gathering, gentleness and disease resisting. Most all leading beekeepers say no better bees than 3-band Italians. See my large ad in May issue.

Untested, I, 75C; doz., \$8.00; % doz., \$4.00. Select untested, I, \$1.00; doz., \$8.50; % doz., \$4.50. Tested, I, \$1.25. Select tested, I, \$1.50. Extra select tested, I, \$2.00. Breeders, \$5.00. Bees with queen, per lb., \$2.50; 6 lbs., \$12; I2 lbs., \$20. Try my bees and queens.

H. B. Murray, Liberty, N. C.

FOR SALE—Three-band Italian bees and queens. Our bees and queens last year gave general satisfaction, and this year we are in position to give stronger nuclei with a greater percent of brood than we did last year. If it is a bargain you are looking for send your order this way. We are now shipping bees and queens daily. Bees are all in standard hives, Hoffman frames wired and full sheets of foundation. We guarantee bees to be free from disease.

Bees without queen: Three-frame nuclei, \$2.25; 2-frame nuclei, \$1.75; 1-frame nuclei, \$1.25. Three-ib. bees, \$3.25; 2-ib. bees, \$2.25; 1-ib, \$1.50. 3-band Italian queen, untested, 75c. Tested, \$1.00. If queen is wanted, add price of queen.

The Hyde Bee Co., Floresville, Tex.

HONEY AND BEESWAX

WANTED—Comb, extracted honey, and eeswax. R. A. Burnett & Co., 6A12t 173 S. Water St., Chicago, Ill. 6A12t

WANTED-Beeswax at all times in any quantity, for cash or in exchange for supplies.

Dadant & Sons, Hamilton, Ill.

WANTED TO BUY a quantity of dark and amber honey for baking purposes.
A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE to the highest bidder a limited quantity of Michigan's best white extracted honey, in 60 pound tins.
A. G. Woodman, Co., Grand Rapids, Mich.

COMB HONEY our specialty. Highest mar-ket prices obtained. Consignments of Ex-tracted Honey also solicited. Albert Hurt & Co. New Orleans, La.

To SELL or exchange for bees or hives extra fine red or yellow Carneau Pigeons, Lafrauiere stock; breeders of very largesquabs Write Isabella E Jewell, Vineland, N. J.

WANTED—Extracted white clover and light amber honey. Will buy in lots of 1000 pounds to a carload. I pay cash. State what you have and sendsample with lowest price. Write. M. E. Eggers, Rt. 1, Eau Claire, Wis.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5C a pound for wax rendered.

The Fred W. Muth Co., 204 Walnut St., Cincinnati. Ohio.

Honey Wanted—We are in the market for white and light amber grades of honey, also off grades which are suitable for baking. If you have such honey to offer, please send us sample, state the quantity you have, how packed and your lowest price for same.

Dadant & Sons, Hamilton, Ill.

NORTHWESTERN BEEKEEPERS! Save time and freight by ordering supplies (at catalog prices) near home. Geo. F. Webster, Valley View Farm, Sioux Falls, S. Dak.

FOR SALE—Cedar or pine dovetailed hives, also full line of supplies including Dadant's foundation. Write for catalog.

A. E. Burdick, Sunnyside. Wash.

WANTED—Wax and old combs for cash or to make up on shares. "Best quality" foun-dation made and sold cheap in small lots. J. J. Angus, Grand Haven, Mich.

BEE-KEEPER, let us send our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. White Mfg. Co., 4Atf Paris, Tex.

SUPPLIES.

FOR SALE—Fifty 8-frame hives; used but in good condition; painted; complete with frames; no combs, with Higginsville cover and reversible bottom, at \$1.00 each or \$45.00 for the lot.

The M. C. Silsbee Co.,
Cohocton, Rt. 3, N. Y.

HONEY LABELS

Honey Labels of the better sort. Not only the most attractive but also the lowest in price. Send today for free samples. Liberty Pub, Co., Sta.D, Box 4H, Cleveland, O.

Honey Labels.—We have just issued a new and up-to-date catalog of honey labels and stationery. Write for your copy. Neat labels and quick delivery guaranteed. American Bee Journal, Hamilton, Ill.

MISCELLANEOUS

25 LADIES' COOTS, bird dogs, wild ducks for sale or exchange for bees.
A. J. Graves, Ocheyedan, Iowa.

WANTED

Wanted—75 or 100 colonies of bees; 10-fr hives; wired frames. Price reasonable. P. O. Box 596 "U" Farm, St. Paul, Minn.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses. Dadant & Sons, Hamilton, Ill.

Field Meet at Denver

The Field Meet of the Colorado Honey Producers' Association will be held at Denver, Saturday, June 16. The Colorado meetings are helpful in every way, and those who do not attend will miss a rare treat. Every one interested in bee-culture is invited to attend. Write for further particulars to Type Cover Honey Propulsers' Ass'y THE COLO. HONEY PRODUCERS' ASS'N.

Denver, Colo.

Statement of Ownership, Management, Circulation, Etc.,

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Known bondholders, mortgagees, and other security holders holding one percent or more of total amount of bonds,

mortgages or securities—None.
[Signed] M. G. DADANT, Manager.
Sworn to and subscribed before me

this 14th day of April, 1917.
[SEAL.] R. R. WALLACE. Notary Public.

My Commission expires Sept. 22, 1917

HONEY AND BEESWAX

CHICAGO, May 18.—As we are entirely cleaned up on honey, both comb and extracted, we find it difficult to quote prices, although there is still a call for it.

Beeswax brings 33@35c per pound, according to color and cleanliness.

R. A. Burnett & Co.

KANSAS CITY, Mo., May 15.—Number 1 comb honey is selling generally, around \$3 25 per case, but there is not very much on hand. However, the demand seems to be rather light. The market on extracted honey is very firm, price ranging around 11@12c a pound, and none of the dealers have very much on hand. As regards the supply of extracted honey in Kansas City at the present time, when compared with last year, we think it is considerably lighter.

The market on beeswax is 33@35c a pound. C, C, CLEMONS PRODUCE COMPANY.

Denver, Colo., May 16.—This market is cleaned up on both comb and extracted honey, excepting a small quantity of extracted honey which we are reserving for bottling purposes. We are, however, in the market for beeswax, and are now offering 38c in cash and 40c in trade for clean yellow stock delivered here.

The Colo. Honey Producers' Ass'n.
F. Rauchfuss, Magr.

SAN ANTONIO, May 18—Honey markets are still bare of both comb and extracted. At this time last year one-fourth of all our summer surplus was being shipped. This year not a carload has been shipped from Texas. Delay has been occasioned by drouth and retarded spring. Wholesale prices on new crop of extracted honey is toc and comb honey is zc. Retail prices in principal markets range from 15@20c per pound. Beeswax is in strong demand. Local lots bring 30c cash and 32c in trade.

SOUTHWESTERN BEE CO.

CHICAGO, May 22.—Honey is finally cleaned up, both comb and extracted. It was a long, hard seige to get cleaned up, as honey did not look very well towards the close, and considering the high prices in other commodities, it seems strange that honey did not do better. However, we will add that extracted honey seemed to be in better demand, as the consumer realized he could get the pure stock done up in this manner, and starting in with next season we would not be surprised to see an improved demand for the extracted honey.

Beeswax is quotable from 32@35c per pound.

NEW YORK, May 17.—Comb honey is well cleaned up, but there is still a fair demand for No. 1 and No. 2 fancy white at around 13@14c per pound, according to quality and quantity. There is no demand at all for the lower grades. Extracted honey is in good demand and very little stock on the market at this time. The new crop is beginning to arrive now quite freely from the South, and finds ready sale, prices ranging from soc to \$1.25 per gallon, according to quality, Beeswax is steady, prices from 40 to 42c.

HILDRETH & SEGELKEN.

Murry's Queens

THREE-BANDED ITALIANS GOLDEN ITALIANS

The best of either. Orders filled in rotation or money refunded. Untested, 75 cents. Tested. \$1.00.

H. D. MURRY.

Mathis, Texas



Colored **Bee Hive**

PRICES—12 for 20C; 24 for 40C; 50 for 75C; 100 for \$1.23. Large quantities, write us. Made in many colors. Furnishes means for a better control of the bees. Sample and catalog free.

Arthur P. Spiller, Box H, Beverly, Mass.

Crop Reports and Market Conditions

CROP AND MARKET REPORTS

The Government report for May 1 has just been issued. gives a general summary of the following factors: Winter losses, number of colonies compared to May 1 last year, condition of colonies compared to normal, and condition of honey plants compared to normal. Our summary which follows is a combination of our own reports with those of the government.

WINTER LOSSES

In New England, the losses are about average, those colonies wintered in cellars appearing in worse shape than those wintered outside with protection. Spring dwindling has been common there as well as in New York, and, in fact, all the East, with losses about the

same as in New England.

For the Central States conditions are probably normal, or a little better, with losses averaging around 10%. In fact, the whole country has an average loss, according to the Government report, of 10%, as against a loss of 13% last year. Heavy losses prevail in the following states: North Carolina 30%, Montana and Wyoming 20%, Idaho 46% and Utah 30%.

The number of working colonies for the crop is much larger than last year, owing mostly to the excessive crop of the Central States, where the increase has been marked.

CONDITION OF COLONIES

No doubt but that condition of colonies was below normal on May 1, as reported by the State Department, but the last two weeks have seen a remarkable change. The early cool weather caused general dwindling and losses were not infrequent. In the north half of the country the bees' condition is still below normal, but in the South Central States bees are beginning to "boom," and swarms are reported.

The queen-breeders and pound-package men of the South have been under a handicap on account of the late spring, and most of them are overwhelmed with orders which ordinarily could have been filled weeks ago. Purchasers should make due allowance for this.

HONEY PLANT CONDITIONS

Clover prospects in the Eastern States are normal,

with a fair crop prospect. In the Central States the clover plants are from 75 to 90% of normal, with conditions improving as the time of the clover flow draws nearer. In North Carolina a good flow is now on. Florida reports the early crop good, but the weather too cool. The whole Southeast is in a similar condition, with prospects below normal. In Texas the first crop has been a failure and prospects are not flattering for the later

It is too early to estimate general conditions for the West, though they seem about normal. On the coast line prospects are fair, and poorer inland.

SALES, OFFERS, PRICES

Generally speaking, all old honey is cleaned up. Very little of the new crop is ready for the market. One Chicago firm offers a car of white California extracted at 13c, which they consider a bargain, as the bulk of the new crop will not be in for a month or more.

A few sales in advance are being made at prices ranging from 8c to 10c for white honey. The bulk of the producers, however, prefer to wait till the crop is harvested before selling.

It is the opinion of most reporters that there will be an active demand and the price will be very high. One noted California producer, who is not selling ahead, states that it is not difficult to find buyers if you but set a price. One large bottler is offering 9c for white extracted and furnishing the containers.

The demand for foreign shipment is extremely large and bottlers seem anxious to buy a season's supply be-fore exporting commences. Many reporters insist on a minimum price of 10c for extracted, and a few think it should be worth 12c in a wholesale way.

Almost everyone states that local sales are going to be larger than ever before, and at good prices. What with the sugar shortage which will be felt, especially if exportation is not curtailed by the curb of the submarine warfare, honey prices should rule high. Honey should, as one reporter remarked, command a price in proportion to its worth.

With such conditions and in order to carry out the suggestions of what is best for our country, let us all strive by every means to make the 1917 honey crop as large as possible.

Service Quality

BUY MARCHANT'S QUEENS AND GET RESULTS-RE-QUEEN NOW

We have in operation over 1000 nuclei. We are prepared to take care of your orders, both LARGE AND SMALL. Our queenbusiness for the past two months has been larger than ever before. Why? Because our stock gives results. We are offering queens at the following prices for JUNE, JULY, AUGUST AND SEPTEMBER:

Untested\$1.00	\$ 5.00	\$ 9.00	\$16 00	\$0 \$30 00	\$52,00	
Tested 1.50	8.00	15.00	Breed	ling que	ens.	\$ 5.00
Salect tested 2 no	70.00	78 oo	Sel h	reeding	aneene	10.00

Never before has this strain of bees been put on the market at such a low price. Take advantage and requeen your yard with the best strain on the market.

J. E. MARCHANT BEE & HONEY CO. Columbus, Georgia, U. S. A.

(The home of the southern honeybee.)

OUEENS of MOORE'S STRAIN of ITALIANS

PRODUCE WORKERS

That fill the supers quick With honey nice and thick.

They have won a world-wide reputation for honey gathering, hardiness. gentleness, etc.

Untested queens. \$1 00; 6 \$5 00; 12, \$0 00 Select untested. \$1.25; 6 \$6.00; 12, \$11 00 Safe arrival and satisfaction guar-anteed. Circular free.

J. P. MOORE

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Southern Beekeepers

Get the famous Root goods here; veils, 6sc; smoker, ooc; gloves, 65c; wire imbedder, 35c; honey knife, 8oc; 1-lb. spool wire, 35c; medium brood foundation, 1 to 11 lbs., 58c per lb; 11 to 25 lbs., 56c; 50 or 100 lb. lots, 53c; 10-fr. wood zinc excluders, 50c each. Hoffman frames, 375 per 100. Honey extractors for sale. I am paying 28c cash and 29c in trade for wax.

J. F. ARCHDEKIN, Bordelonville, La.

Government Market Reports

Beginning July 1st, we are informed that under the direction of the Government there will be issued a bulletin giving the daily, weekly and monthly market movements of honey.

The bulletin will be very wide in scope, as it will not only give the movement of all carload shipments of honey in all sections of the country as well as the exports, but it will also give the prices ranging in different cities on carload sales. These are bound to be accurate, as they will be taken from the books of the merchants handling such sales.

We urge all our subscribers interested in selling their honey away from home to get in touch with the Department and get put on the list so that they may get the bulletin referring to honey movements. It is free to all who apply.

Not only will it be of service to those who sell honey in carlots away from home, but it will also help in determining the prices which would prevail in local sales of honey.

A more complete summary of what is to be undertaken will be given in our next issue.

Nothing is more inducive to stimulate home sales of honey than a good label, while a poor label will detract much from an otherwise salable article.

Our new Honey Label catalog, just off the press, is up todate in every way, and contains many different designs of labels, some of which should be just to your taste.

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I guarantee safe arrival (U. S. and Canada), purity of mating and satisfaction. Write for circular.

-Prices of Queens-

	-								-							
					Ne	ov. 1 to Ma	у 1	M	ay 1 to Jun	e 1	Ju	ne 1 to Jul	y 1	Jı	aly 1 to No	v. 1
					1	6	12	1	6	12	1	б	12	ŀ	6	12
Untested -					\$1.50	\$ 7.50	\$13.50	\$1.25	\$ 6.50	\$11.50	\$1.00	\$ 5.00	\$ 9.00	8 .75	8 4.00	\$ 7.50
Select untested			-		2.00	8.50	15.00	1.50	7.50	13.50	1.25	6.50	12.00	1.00	5.00	9.00
Tested -		9		-	2.50	13.50	25.00	2.00	10.50	18.50	1.75	9.00	17.00	1.50	8.00	15.00
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Select queen tested for breeding, \$5.00.

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PRICES APRIL IST JULY IST

Untested	\$.75	\$ 4.25	\$ 8.00	
Select untested	.90	5 co	9.00	
Tested	1.25	7.00	13.00	
Select tested	2.00	11.00	20,00	

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Quirin's Improved Superior Italian Bees and Queens. They are Northern bred nardy. 25 years a Queen Breeder.

PRICES	Bef	Before July 1st			After July 1st			
	I	6	12	I	6	12		
Select untested	\$1 00	\$ 5.00	\$ 9 00	\$.75	\$ 4.00	\$ 7.00		
Tested	1.50	8.00	15.00	1.00	5.00	9.00		
Select tested	2,00	10 00	18 00	1.50	8.00	15.00		
2-comb nuclei	2.50	14.00	25.00	2.25	12.00	22.00		
3-comb nuclei	3.50	20.00	35.00	3.25	18.00	32,00		
8-frame colonies	6.00	30.00		5.00	25.00			
10-frame colonies	7.50	38.00		6.00	32.00			
1/2-pound package bees	1.50	7.00		1.00	5.00	1		
1-pound package bees	2,00	10.00		1.50	8.00			

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Untested..........75 cts. each; \$65.00 per 100 | Tested.......\$1.25 each; \$110.00 per 100 | Select untested......90 cts. "; \$75.00 " 100 | Select tested 1 50 " 125.00 " 100 | Write for descriptive price list. Let us book your order now. Only a small deposit required.

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